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THE BOSTON Medical and Surgical JOURNAL

VOLUME 190

MAY 29, 1924

NUMBER 22

ORIGINAL ARTICLES

Torula Infection in Man. Report of a Case

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Two cases of torula infection entered the Peter Bent Brigham Hospital in the course of four months in nineteen hundred and fourteen and were reported by Stoddard and Cutler¹. There was no subsequent admission of this disease until nineteen hundred and twenty-three when the third case was admitted. This case was not recognized clinically and passed as tuberculous meningitis, at the time of autopsy. The rarity of torula infection in man, and because torula infection is not generally recognized, suggested the advisability of placing this case on record.

REPORT OF CASE

Case Report—P. B. B. H. 37444.

Entered hospital March 5, 1923—Died April 1, 1923.

Entrance Complaint: Headache and stomach trouble.

Personal History: Patient is a male of 45 years. He is married and has five children living and well. Had gonorrhoea fifteen years ago.

Past History: Patient had measles, mumps, whooping cough and chickenpox when a child. He has had a number of attacks of rheumatism with swelling of various joints. He had typhoid fever, pneumonia and scarlet fever at the Boston City Hospital fourteen years ago. Three years ago he was struck on the back of the head with a brick, which laid him up in the hospital for eight days. He has suffered from headaches since a young man. They are quite constant, located in the parietal region, throbbing in nature, and sometimes cause nausea. He has vertigo which has caused him to fall in the streets several times. He has not lost consciousness with these attacks. At 18 years of age he had an attack of jaundice which lasted two weeks. Two years ago he took potassium bichromate by mistake and vomited one and one-half quarts of blood. He has since vomited small amounts of blood and has had indefinite stomach trouble, viz., slight nausea and occasional vomiting after meals. He has slight burning on urination. He has frequency, and, at times, cloudy urine.

Present Illness: The stomach trouble history is noted above. He has had headaches since a young man. During the last six weeks his dizziness, headaches and nausea have been getting more and more severe. This followed a mild attack of "influenza." He has been unable to continue his work because of these symptoms. He is becoming forgetful.

Physical Examination: Is negative except for hyperactive knee jerks, unequal pupils that do not

react to light. Temperature has been normal throughout. Eye grounds are negative.

Laboratory Findings: Blood: Hemoglobin 107 per cent., R. B. C. 5340, W. B. C. 10,000-1400; 81 per cent. polys and 19 per cent. lymphocytes. Wassermann negative. Blood urea nitrogen, 16 mgms. Urine: Cloudy. Specific gravity, 1019; trace of albumin, many white cells. Urine was collected from the right and left ureters and from the bladder. It was cultured and inoculated into guinea pigs. The urine from the bladder yielded a proteus bacillus. Cultures from the right and left ureters were sterile. Guinea pig inoculations were negative.

Spinal fluid: 3-5-23—Grossly contaminated with blood. Wassermann negative.

3-22-23 Very slightly turbid, Fehling's solution reduced, globulin +, 338 cells, 81% lymphocytes. Wassermann negative, guinea pig negative.

Colloidal gold curve 5555543320

3-26-23 Colloidal gold curve 0245553000

3-27-23 Spinal fluid under 270+ mm pressure.

It showed 299 cells and a single plus globulin. Cystoscopic examination: It showed evidence of a cystitis and a horseshoe kidney was diagnosed. The cystitis was considered non-tuberculous.

Neurological Developments:

3-15-23 Patient is drowsy and complains of headache continuously.

3-23-23 Patient has a constant tendency to sleep.

3-27-23 Pupils react promptly to light and knee jerks are not now exaggerated. Neck is very rigid and patient is stuporous but not lethargic. There is a suggestive Kernig sign.

Pathology: A-23-33.

Abstract of Positive Autopsy Findings: The heart is slightly enlarged and weighs 510 grams. It is otherwise negative. The lymph nodes at the bifurcation of the trachea are definitely enlarged. The largest measures 1.5 cm. It shows a definite caseous center. The kidneys are situated so that the lower pole reaches the brim of the pelvis. They are fused, forming a horseshoe kidney. No other findings worthy of note were made in chest and abdomen. Brain weighs 1290 gms. The surface of the brain is dry. Along the vessels, emerging from the Island of Reil, numerous translucent nodules surrounded by a greyish zone are seen. Over the cerebrum ten such lesions were counted. They are from 2-3 mm. in diameter. The cerebellum is adherent to the dura and cannot be removed without tearing the

cerebellum somewhat. The cerebellum presents a definite granular appearance. The pia arachnoid over the base of the brain is also thickened.

The brain was sectioned after thorough hardening by numerous coronal sections. The lesions seemed to be confined entirely to the meninges. Sections were taken from various parts of the brain for study.

The mucous membranes of the ears, mastoids and perinasal sinuses appear normal.

Microscopical Findings:

Heart: The sections show slight scarring and thickening of the blood vessels.

Bronchial lymph node: The architecture of the node is destroyed by an extensive tuberculosis. There are several large caseous areas surrounded by dense fibrous tissue infiltrated with lymphoid cells. In addition to this, there are many single and conglomerate tubercles throughout the sections.

Brain: Sections of various portions of the brain, other than those including meninges, show no pathology. Sections of meninges from the region of the pons, cerebellum and Island of Reil show most marked lesions. In these areas there is an extensive proliferative reaction; the meninges frequently measuring 3 mm. in thickness. This new tissue is made up for the most part of fibrous tissue in which many giant cells, endothelial cells, plasma cells and lymphoid cells are scattered without regard to any arrangement. There is a slight perivascular infiltration of the brain for a limited depth. Here and there are areas of necrosis, some of which are quite extensive. In these necrotic areas are many polymorphonuclear leucocytes.

In relation to the above described lesions is an organism which averages about the size of a red blood cell. Some are considerably larger, while many are very decidedly smaller than this average. They are quite uniformly spherical in shape, with a distinct membrane or capsule. Surrounding the organism is frequently a very wide, clear zone. The material within the capsule stains with difficulty, and frequently the capsules and surrounding clear zone is all that can be made out. When the material within the capsule is stained, it takes a basic stain and is quite homogeneous.

These organisms are especially numerous around the necrotic areas described above. In other areas, made up of a delicate network of connective tissue which contains an occasional round cell, these organisms are found in great numbers, and in these areas the gelatinous zone about them is especially prominent. Many of the organisms are included in giant cells.

The choroid plexus contains a small lesion in which these yeast-like bodies are found.

COMMENT

Stoddard and Cutler¹ reviewed the literature with reference to infection of the brain and meninges in man with yeasts. They found that there were ten cases reported. Freeman and Weidman² with their recent case report and review of the literature brings the total to twenty-four and the most recent case report of Shapiro and Neal³ adds another case.

Stoddard and Cutler¹ noted in their paper that the yeasts varied in morphology and in the pathology they produced. Studying the various lesions and organisms in tissues, they found that they fell into two groups; one, corresponding to the organism and lesions of blastomyces der-

matitis; the other organism was suggested by Wolbach to be the same organism which caused a generalized yeast infection in a horse, described by Frothingham.

Frothingham⁴ found that the yeast isolated from his case reproduced, solely, by budding and produced no spores or mycelia. These facts placed the yeast in the imperfect fungi group and in the genus *Torula*.

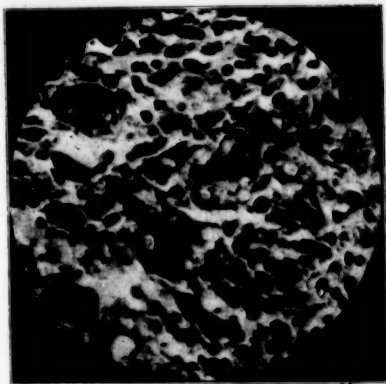


FIGURE 1. Low power photomicrograph of organizing exudate in meninges. The torulae are present in giant cells.

Stoddard and Cutler restudied this culture and at no time found mycelia or spores, so the name *Torula* was retained for their human cases of yeast infection.

This *torula* has a peculiar appearance in tissues, due to the formation of a gelatinous capsule about itself and to the formation of small cavities in the gray matter of the brain which Stoddard and Cutler thought were formed by the digestion of brain tissue by the organism. There was very little response on the part of the body to the yeasts in these small cavities. For these reasons, they decided to designate this particular organism, *Torula histolytica*.

The organism of blastomyetic dermatitis, which occasionally affects the brain of man, appears quite different in tissue and forms different lesions. This organism, although varying much in size, is larger than *Torula histolytica*. The protoplasm stains basic and is coarsely granular. The lesions it produces in the brain is made up of granulation tissue in which are pin point abscesses. It does not form cyst-like cavities and is not enveloped with gelatinous material. The involvement of the brain is usually part of a generalized infection.

On artificial culture media, the organism of blastomyetic dermatitis forms mycelia and aerial hyphae. Because mycelia and aerial hyphae formation are distinguishing features of the *oidia* Ricketts⁵ preferred to call blastomy-

ectie dermatitis, cutaneous oidiomycosis. This is the point of view accepted by Stoddard and Cutler in their article.

There is still confusion as to the classification of these two organisms. According to Vuilemin, all pathogenic yeasts that reproduce by budding and form no ascospores fall into a group called *cryptococcus*. This would place both *Torula histolytica* and *Oidium gilchristi*

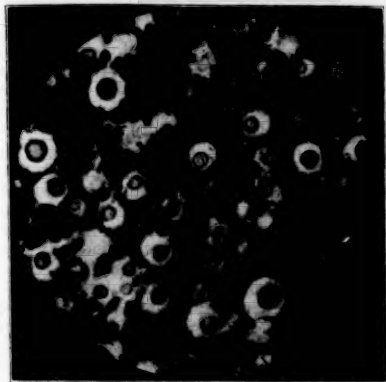


FIGURE 2. High power photomicrograph about 500 diameters, showing many torulae in necrotic exudate. A field characteristic of the meningeal exudate and material in the cortical abscesses.

in this group. Other observers prefer to classify organisms that reproduce by budding, that form no ascospores but do produce mycelia and aerial hyphae as oidia and restrict torula to the yeasts that reproduce by budding but form neither mycelia nor ascospores.

This classification immediately suggests that there are a number of torulae and that there may be more than one that affects the central nervous system of man. There are a number of torulae but at the present time the available information does not seem sufficient to state that there is more than one torule that affects the central nervous system of man. Detailed description of the organisms isolated from these cases, like the one recently given us by Freeman and Weidman, in the future can settle this question.

Stoddard and Cutler felt, at the time of their report, that torula infection in man occurred more frequently than recognized. There is some truth in this statement, evidenced by the number of cases subsequently reported, but mindful of these cases, we must still consider torula infection as a rare disease, although it is impossible to determine exactly how many of the cases of infection of the brain and meninges in man are due to *Torula histolytica*, because of incomplete studies in some of the cases and confusion in the classification of the organism. It seems quite certain, however, that at least fifteen cases are

due to this organism. Torula infection, then, in man is rare, but there is no other yeast that so frequently infects the central nervous system of man.

The organism in this case has the same morphology as the organism reported by Stoddard and Cutler. It forms the same gelatinous envelop about itself and produces the same pathology as the organism in case number two in their report. On these grounds, we hold this case to be an infection with *Torula histolytica*.

The pathology in this case, as far as the brain was concerned, was confined entirely to the meninges and the cyst-like cavities in the grey matter of the brain, which frequently form in this infection, were not present. There was an active tuberculous lymphadenitis at the bifurcation of the trachea. Tuberculosis and Hodgkin's disease have been present in some of the cases previously reported.

In reviewing the clinical history of this case, we were impressed by the absolutely normal temperature and slow progress of the disease. Headache and hyperactive knee jerks were the only findings for three weeks after admission. The neck then became stiff and there was a suggestion of a Kernig's sign. We must suspect torula infection, then, in a case of meningeal irritation which is slow in its development, with or without signs of brain tumor, as this condition is apt to simulate brain tumor very closely. The diagnosis can only be made, however, by the finding of the organism in the spinal fluid.

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CONCENTRATED FOOD FOR THOUGHT

Mr. E. E. Rittenhouse of the Equitable Life Assurance Company in his report to the life insurance presidents says:

You look smooth, pink and healthy.

You are a good liver. (He said *are*, not *have*.)

You hurry. The medium age at death of the American people is 43.

Your eyes have been strained by inside work: hence the glasses.

You are seriously overstraining heart, arteries, kidneys, nerves and digestion—as the rapidly increasing death rate shows.

You could detect and head off these troubles if you would go to a doctor for an occasional examination.

Under exertion you are short-winded, due to lack of exercise or a bad heart.

Hirst Transperitoneal Caesarian Section*

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THE nomenclature of the newer forms of caesarian section is so hopelessly confused at the present time that it might be well to open this paper with a brief explanation of some of the terms in use. We are now frequently hearing the expressions,—extraperitoneal, transperitoneal, cervical, the low operation, and, in addition, innumerable proper names, all of which are fairly incomprehensible but freely used in gynecological papers and discussions. These operations are most often spoken of as "cervical," which to the average man in general practice, in this section of the country, means nothing. He is only aware that the trend in this line of work is toward the low incisions and beyond that he knows very little of the real essentials. I feel that there is a logical arrangement of terms whereby this subject can be made comprehensible. I therefore recommend the following classification and definitions as a means of clearly interpreting all criticisms. The cervical Caesarian is becoming pretty generally adopted in preference to the classical, or Sanger operation, and it is quite important to know about some of the accepted methods.

Consider all of the newer operations, variations, or modifications of each, as cervical, at least in their intent; that they are done behind the bladder and as low in the cervix as possible. To begin with, then, all are cervical caesarians. Keeping in mind the anatomical differences with regard to the open or closed peritoneum, we can divide them into three main types:—

1. Extraperitoneal (cervical caesarian)
2. Intraperitoneal (cervical caesarian)
3. Transperitoneal (cervical caesarian)

The *extraperitoneal* cervical caesarian is, as the term implies, an operation done strictly outside of the peritoneal cavity in approaching the uterus, accomplished through the Kuestner, inguinal transverse, or Pfannenstiel incisions with reflection upward of the utero-vesical peritoneum. The only true extraperitoneal operations today worthy of mention are the Kuestner and Latzko.

The *intraperitoneal* methods, literally, should include all operations in which the peritoneal cavity remains open and exposed at the time of incising the uterus. The Krönig, Beck and DeLee's "Laparotrachelotomy" are intraperitoneal.

The *transperitoneal* cervical caesarian may be applied to the operations in which the peritoneum is opened and an artificial extraperitoneal space created by suture of the parietal and visceral layers. Hirst, or Veit-Fromme, operations are to be remembered under this heading.

*Read before the East Boston Medical Society, April 24, 1924.

Many times references to the extraperitoneal operation are made in the literature when transperitoneal or intraperitoneal is intended, and vice versa. This classification might possibly be considered loose from the standpoint of completeness, but it is not necessary to carry in mind too long a list of operators' names merely representing slight modifications of the original. Some of these mentioned are quite similar, but seem to have popular differences so that they are acceptable and pretty much in use in certain clinics. An interesting bibliography on the history and evolution of these operations is recorded.

True extraperitoneal caesarian section is unquestionably difficult and consumes more time than is allowable, with safety, in the average case; it has therefore been given up in the large clinics as impractical. We can almost dispose of this type by saying, "Frankly, it is not done." The Krönig operation and that recommended by Beck enjoy a share of popularity and logically so, when we consider that they have real advantages over the classical or Sanger operation, but they have the objectionable intraperitoneal feature which renders them relatively inferior to the extraperitoneal and transperitoneal operations, more especially, of course, in the frankly infected cases. Although my experience with the intraperitoneal types of operations is somewhat limited, it is my feeling that they are not theoretically as applicable in either clean or infected cases as the transperitoneal. When the fundamental purpose in this field of endeavor is to isolate the peritoneal cavity from the spill of operation as well as from infected lochia, why go on with intraperitoneal methods? It cannot be denied that the Hirst or Veit-Fromme operations more closely approximate this purpose, and it is my personal belief that these methods completely seal off the cavity in a very few hours. It is notable that a few writers on the subject of caesarian section have persistently condemned all the newer methods, stating that the novelty attending their employment will wear off. To be sure, there is almost a hysteria in this work, but is it not for the best? We are admittedly in need of a better operation and have only to review mortality statistics in order to be convinced. Furthermore, when reports of successes are appearing in the literature, urging us to consider these new and distinctly unharzardous procedures, is it not our duty to help weed out the superfluous?

If it were not for protracted labor, premature rupture of the membranes, vaginal examinations, etc., there would be slight excuse for departing from the classical type of caesarian section, but in spite of all the education for better

obstetrics, these factors seem to be present now as commonly as ever. It must always be considered that in district practice, where the local hospital is used, the obstetrical consultant has not the advantage of his personal clinical routine. Having been called to decide between pelvic and abdominal delivery, he is mindful of certain important requirements and he wonders whether or not sterile pads have been kept on the vulva?—if the shave and scrub preparations before examination have been adequate?—if enemas have been carefully given without contamination?—the examining hands scrubbed?—were the gloves unbroken and thoroughly boiled? These and many more factors over which he has no control burden him with a tremendous responsibility and consequently every one of these cases should be considered potentially infected. It has been my experience that in the majority of cases where the doctor is detained for several hours, he has examined through the vagina to ascertain progress, believing things to be normal. The patient has therefore been subjected to all of these risks. The vaginal examination seems to be routine with the best practitioners and considered justifiable when the ordinary prenatal work has been done. Such would indeed be excusable were it possibly exactly to prognosticate disproportion before the onset of labor, but unfortunately this can only be done in a small percentage of the cases. They believe that the average case progressing in normal labor is little harmed by one or two "clean examinations," whereas surgeons feel that after one examination regardless of aseptic precautions, opening the uterus through the abdominal route entails a very great risk. It seems that there always will be an unnecessary controversy between the physician and surgeon in regard to the vaginal examination. It is not my purpose in this paper to discuss prenatal care of management of normal labor; therefore in passing I will merely suggest that there is a deplorable neglect of study in these departments of the work, and one cannot hope to do good obstetrics without frequently reading up and putting into practice what the best teachers are constantly offering. The plea for rectal examination is strong from the men who see these cases at the operating table, and we should respect their experience and train ourselves to examine intelligently by this route. Granted, it is difficult to make the change, but rectal examination is distinctly as easy as the vaginal, and very gratifying when the technique is once acquired.

PERITONEAL REACTION AND INFECTION

A great deal has been written about causes of infection in the cases that have been subjected to the first and second stage abuses, but too little of those which have never been handled at all before coming to section. Take, for example,

the cases in which there has been no vaginal examination, or attempted instrumentation, or even with unruptured membranes, the occasional one of which develops an insidious peritonitis and succumbs before we can convince ourselves that there is possible infectious peritonitis present. I believe that this type is one which starts as a simple chemical peritonitis from the spilling in of liquor, vernix, meconium, blood-clot, etc., and gradually develops real infection in the presence of a chemically weakened peritoneum. I have seen a number of these cases in consultation and observed that they are quite obvious cases of late peritonitis. The immediate post-operative reaction seems to be no more than in the average classical caesarian section; they progress in an indolent way, occasionally showing encouraging signs, but finally, after seven to nine days, lapse into a depleted state beyond any help. This is a very definite type of case and not at all uncommon with the surgeon obstetrician. It does not seem possible that the peritoneum was ever intended to stand such insult as occurs in the average classical caesarian, and if, as claimed, it is possible entirely to protect the abdominal cavity with towels, sponges, or what not, I have not as yet seen the case that proves the point to my satisfaction.

We are all familiar with the post-operative distension and vomiting so commonly attributed to adynamic ileus, atonic bowel, volvulus, etc. This is almost always accompanied by one to one and one-half degrees of temperature, and if the combination subsides in four days, which is fortunately the rule in most cases, the patient is said to have "straightened out." Surgeons are so well acquainted with this picture that it rightfully could be called "the period of speculation." There are few classical caesarian cases which do not suffer at least forty-eight hours of tympanites. The amount of post-operative reaction of this sort of course depends largely on the amount of handling of bowel in introducing gauze packs and the amount of amniotic products spilled into the peritoneal cavity, and, admittedly, varies with different operators. In the ordinary abdominal operation, great care is given to the peritoneal toilet, and if serous exudates suspected of even the slightest infection are spilled in, the cavity is drained. We cannot drain caesarian sections, yet in the classical operation the peritoneum withstands a deluge of questionable liquor and is expected to take care of it. The great absorptive powers of the peritoneum and its resistance to infection is a great asset in abdominal surgery, but beyond certain limits it fails,—perhaps seldom, but often enough at least in caesarian section to demand a method of staying out of the peritoneal cavity, if such is available. I believe that the transperitoneal operations offer a method of staying out.

Involvement directly through the uterine su-

ture line as the source in the frankly infected cases can never be questioned. It is by far the most common cause of peritonitis after section, and in contradistinction to the type just discussed, the invasion is early and becomes a real fulminating peritonitis within four or five days. With an infected uterine incision communicating directly with the peritoneal cavity, it is obvious that a local peritonitis is at once established and then rapidly disseminated. The intraperitoneal operations of Krönig, Beek and DeLee are designed to cover the uterine incision by means of bladder or peritoneal flaps and thereby seal off infected lochia. If pus then forms under this layer, it can readily be released through the cervix or by anterior vaginal colpotomy. The transperitoneal operations accomplish this purpose equally as well and with the added advantage of protection from the spill. Being interested particularly in the Hirst transperitoneal cervical caesarian, I would like to quote what Dr. B. C. Hirst says of his operation:—

"This method is comparatively simple and the result has proved (in my experience) that it is reliable, preventing infection of the peritoneal cavity, especially during puerperal convalescence, which is the chief danger of caesarean section on the presumably infected woman, the infection of the endometrium in such cases spreading directly through the uterine wound to the peritoneal surface and rapidly causing a general septic peritonitis."

OPERATION

The operation that I have used routinely since 1920 and in 43 cases is the Hirst, described and recommended by that surgeon in 1913. As previously mentioned, it is the transperitoneal type, and not at all difficult if the steps are carried out in logical order. Any well-trained surgeon capable of doing the classical operation can do the Hirst with only a slight increase in time. It demands some dissection of layers, which is objectionable to the habitual classical caesarian operator, but this becomes less objectionable as the purpose is realized. The great majority of cases are not emergencies, and rushing through is unnecessary. The accidents occurring as a result of rushing and blind operating have done much to condemn the operation, and perhaps a bit more care in the handling of tissues may bring more favorable criticism for the future. I have seen surgeons who do a precise and clean laparotomy for other conditions tear through in section cases to deliver the baby in the shortest possible time. This style of work will not produce a good transperitoneal technique and I thoroughly believe that the method has been suffering adverse criticism on this account. The following is a description of the Hirst operation as practiced in these cases.

The skin of the entire abdomen is first shaved and then scrubbed for fifteen minutes with tincture of green soap and water, plenty of irrigation being used. This is followed by another scrub with alcohol for five minutes. Sterile

towels are either strapped on with adhesive plaster or an abdominal binder applied to hold them in place. The vulva is washed with a 1:1000 corrosive solution and a sterile pad replaced. The patient is never allowed to walk, but is wheeled into the operating room or carried by stretcher. On the table, legs and chest are carefully covered with warm blankets and ether started immediately. Preliminary morphia is not used. Under ether, the bladder is catheterized and the skin again prepared by scrubbing off with ether and painting with 7% tincture of iodine. The abdomen is then draped and the table tipped up in moderate Trendelenburg position.

TECHNIQUE OF OPERATION

The operator stands on the patient's left, an incision is made in the median line from the symphysis to the umbilicus, through layers down to the peritoneum. It is of distinct advantage to incise the fascia close into the symphysis, as a much more roomy incision is afforded by this seemingly small detail. Towels are then clamped to the skin edges by means of Moynihan towel clamps, the peritoneum is picked up and opened exactly in the line of incision from the top of the bladder to within an inch of the upper angle of the wound. The bladder and lower uterine segment are then exposed. Rarely, if ever, are intestines or even omentum seen. The vesico-uterine fold of peritoneum is distinct, and beginning at this point an incision, barely through the visceral coat and not into uterine muscle, is carried up to exactly approximate the incised parietal layer at its upper angle. (In this step a clean knife-blade should always be used.) Separation of the bladder off the cervix is accomplished easily and quickly by blunt pushing motion with the fingers. Beginning at each side of the separated bladder the visceral coat is dissected off the uterus by pushing snaps or closed scissors underneath the cut edge and using a sweeping motion. The layer ordinarily is loosely attached and this maneuver may even be accomplished with the index finger. A one and one-half inch flap is planned. Snaps are applied about two inches apart all the way around, joining the two layers together. As a rule not more than eight are required,—three on each side, one on the bladder end and one in the upper angle. These snaps also serve as a guide for suturing the layers correctly and evenly in the next step. In their order, two snaps at a time are now held up and a suture placed in the interspace; snaps and sutures now alternate all around and one inch apart. Snaps are left in place during extraction of the head, as they provide additional security against tearing and leakage. An extraperitoneal pocket is now created and muscle exposed for incision.

With a retractor behind the bladder, holding it forward against the pubic arch, the entire cervical segment is exposed. The incision is

made as low in the cervix as possible and carried upward as high as is necessary in the individual case. Even a long incision rarely reaches the corpus. Once through muscle, a tearing motion with the fingers readily completes this step. Liquor now pours over the abdomen and instantly the wound puddle should be mopped out with gauze strips. Most of the cases are vertex, and loose enough in the Trendelenburg to admit the hand for delivery. The occasional large head or impacted head may necessitate a forceps blade to shell it out. If there is no roughness or "diving" for the head, the layers will not be torn. The cord is clamped and cut and the baby handed over; the placenta and membranes are immediately delivered (one hand in the uterus and counter-pressure on the outside abdominal wall being exerted with the other hand), and a three-yard gauze strip packed into the uterus. At this stage one ampoule each of extract of ergot and pituitary are administered intramuscularly in the thigh. This dose is repeated if the uterus seems to be atonic.

The lower and upper angles of the uterine wound are now grasped by means of Allis forceps and pulled up high. These clamps are removed as soon as the first sutures are placed. The muscle is closed with interrupted sutures of Chromic number two catgut about one-half inch apart. Each suture is held up and cut as the succeeding suture is placed and the uterine pack is removed just before closing the upper uterus. Bleeding now being under control, the uterus is grasped and squeezed dry; contraction takes place immediately. The space behind the bladder is wiped out clean and the retractor removed. All layers of the peritoneum are joined across by interrupted sutures of Chromic number two catgut, being placed as nearly as possible in the location where snaps are removed; this effects a tighter closure of the layers as well as covering the uterine incision. In this step the bladder has been pulled up over the incision and covers most of it. Two or three interrupted plain catgut sutures to approximate the recti muscles are advisable. The skin is closed with interrupted silkworm gut sutures and wide silkworm gut stay sutures tied over gauze rolls. This affords a compact and protective dressing. The time consumed averages about thirty-five minutes.

POST-OPERATIVE TREATMENT AND CONVALESCENCE

The patient is returned to bed and heaters and blankets are kept up until recovery from ether is complete. A nurse is stationed for one hour at least to keep track of the uterus, and if it seems to lag, massages the fundus and repeats the pituitrin. The pads are changed frequently, more as a prophylactic measure than for the reason of their being soaked through with blood; in fact, I would consider the immediate post-operative flow in these cases much less than in

the average classical high incision, and have never seen actual hemorrhage occur. If after-pains set in, small doses of morphia can be used, but should be avoided if possible because of its tendency to decrease the very desirable uterine contractions that are so necessary for post-operative drainage.

At the end of twenty-four hours, the patient is placed on a low head rest, which is brought up gradually until on the fourth day it is almost upright. The position thereafter is up during the day and flat, or almost so, at night. This early upright position unquestionably aids drainage. Distension in these cases is extremely rare, but if such does occur, it is usually of the soft variety and readily responds to ordinary treatment with pituitrin, enemata, and rectal tube. There were no cases of persistent nausea and vomiting of the type previously discussed under "Peritoneal Reaction" in my series and consequently I feel that at least in my own experience the method merits the claim of protection from spill.

GENERAL CRITICISM

In all of the cervical operations and particularly in the transperitoneal, is some labor necessary. Labor thins out and widens the lower uterine segment, providing a larger space for incision, and renders the bladder and visceral peritoneal coat looser for separation. Dilatation of the cervix is imperative, both on account of location of the incision and post-operative drainage, and no amount of manual dilatation from above at the time of operation will accomplish this as well as a few hours of labor. In some cases I have felt that the dilatation was not sufficient and found no difficulty in stretching the cervix up to the desired point, but labor was responsible for the dilatation. A case in point, and one that impressed me with the necessity of labor, I saw with the family physician on account of absolute disproportion. The patient, a primipara, twenty-six years old and at term, presented a large baby with an over-riding head. Examination proved that the obstetrical conjugate was short, the promontory was easily felt. The patient was not in labor but I contracted to do caesarian section in this case. We operated and experienced no end of difficulty in the separation of the uterine peritoneum; the bladder and layers, instead of being loose, were closely adherent and after suture the space proved to be contracted because the sutures gave way during delivery of the head. The cervix was rigid and open only enough to admit the index finger. However, after about twenty minutes of exhaustive effort and with numerous rests, three fingers could be pushed through. Needless to say, we were worried about this case, having torn through in delivering the head and consequently spilling a good deal into the peritoneal cavity. The case was clean to begin with,

but in manipulating through the cervix to attain dilatation, we could not be sure of just how much infection might have been brought up from the vagina and carried in with the spill. Contrary to my expectations, this patient drained plentifully, never distended, and did not even have a superficial wound infection.

The advantage of peritoneal isolation or extraperitoneal septic drainage in the Hirst type of operation was demonstrated in four cases of this series which progressed to the limit of infection.

Oct. 29, 1920. Mrs. A. J. Mc., age 39. Primipara. This patient was obese and ran the S. P. T. of albumen right through the last two months, but with no subjective symptoms of toxæmia. Blood-pressure stood around 158-160 until the onset of labor, when it suddenly rose to 194. The pelvic measurements were within normal limits and the head had descended into the pelvis a week before. With the first few pains the membranes ruptured, and in eleven hours of labor most of the fluid had leaked away. By rectal examination the cervix was well taken up but dilated only about the size of a half-dollar. Labor was lagging and the patient presented signs of being tired out. The case was one of dry uterus with rigid cervix and with a threatened toxæmia. The baby was in good condition and caesarean was decided upon as the safest method of delivery in this case.

Operation: The Hirst operation was done, as previously described, and went uneventfully in every way. A normal 8-lb. child was delivered, and the mother presented no signs of shock. It was noticeable before leaving the operating room that the stomach had begun to dilate and lavage was considered but not done.

Oct. 30. Temperature 100°. Pulse 100. Stomach still dilated; also some low distension. Stomach washed out; enemata; slight relief. Pituitrin. Lochia normal.

Oct. 31. Temperature 100.6°. Pulse 100. High and low distension persists. Vomited.

Nov. 1. Temperature 101°. Pulse 108. Distension somewhat relieved by treatment; enemata; hot flaxseed; pituitrin. Lochia foul in odor. Incision clean.

Nov. 2. Temperature 101.2°. Pulse 100. Patient depleting rapidly. Dr. L. E. Phaneuf called in consultation, who gave the opinion that this was a case of adynamic ileus and advised enterostomy with tube drainage.

Operation: Under novocaine a three-inch incision was made over McBurnie's point, through layers to peritoneum. On incising peritoneum the cecum burst through spontaneously, enormously distended and transparent. Cecum and adjacent small bowel showed no signs of peritonitis; there was no fluid in the cavity. By means of double purse-string suture, a rubber tube was sewed into the cecum. Gas and feces squirted out with a hissing sound. Wound closed, all layers with silk worm gut through and through. On leaving the table the abdomen was quite soft. Pulse 130; of good quality; patient felt relieved.

Nov. 3. Temperature 101°. Pulse 100. Distension gone; enterostomy tube draining freely. Lochia foul and septic. Wound appeared reddened. Lower stitches in abdominal wound removed and about two ounces of thick pus obtained. No distension. No vomiting.

Nov. 4. Temperature 100°. Pulse 90. Entire wound red and involved. All sutures removed; wound gaping, with uterus wide open. Pus draining through vagina. Carrel tubes inserted and treatment started.

Outcome: Pulse and temperature gradually came down to normal. Uterus drained pus freely through the wound and cervix. The enterostomy tube sloughed out in nine days and the fecal fistula closed in fifteen days. The uterus and abdominal wound cleaned up slowly and finally healed in until there was only a small utero-abdominal fistula remaining. Wound and fistula together took approximately five weeks to close.

Examination six months after operation showed the uterus of normal size and in good position. There was a hernia of small size in the enterostomy wound.

Sept. 18, 1921. Mrs. G. F. O., age 37. Primipara. Floating head. 18 hours in labor; membranes ruptured. Examined vaginally numerous times. Seen in consultation with the attending doctor and caesarean advised. Hirst operation was done satisfactorily and a normal 7½ lb. child delivered. The placenta and membranes were extracted intact and the uterus contracted well during and after operation.

Sept. 19. Temperature 99°. Pulse 80. No distension. No vomiting. Lochia of normal color and amount.

Sept. 20. Temperature 100°. Pulse 88. Complained of slight headache, otherwise well. Lochia scanty. Abdominal wound appeared clean.

Sept. 21. Nurse reported that early in the A. M. patient called to her and said that "Something had broken loose," and on examining the abdominal dressing she found it saturated with sero-pus. Temperature 100°. Pulse 90. Two of the lower sutures were removed and more sero-pus obtained. Rubber dam was inserted at this point. Lochia scanty, slight odor. No distension. No vomiting.

Outcome: This case progressed to a breaking down of the entire abdominal wound, the uterus opened up widely and drained onto the abdomen as well as through the vagina. There was no sign of peritoneal involvement at any time, and the patient was never dangerously ill. The Carrel treatment was carried out until the wound and uterus appeared reasonably clean, when all layers were brought together with adhesive straps. The wound was healed in three weeks and a good solid scar obtained.

This case never reported for after-examination, but her physician reported that the result was a tight scar, uterus of normal size and in good position.

Dec. 12, 1921. Mrs. M. W., age 28. Primipara. Absolute indication. Seven hours of labor with floating head. Examined vaginally twice in the hospital. Membranes intact; cervix dilated to the size of a half-dollar, and rigid. Hirst operation was done in this case and a healthy 8-lb. baby delivered. Placenta and membranes were easily extracted intact; the uterus contracted readily and there was no hemorrhage. It was thought advisable to dilate the cervix a little more, as it might shut down. This was done with a separate glove and a good deal more dilatation accomplished. Patient returned to bed in excellent condition.

Dec. 16. Patient up to this time very comfortable; temperature 101°; pulse 100. Cheeks flushed and complained of abdominal tenderness. Dressing inspected and wound appeared red. Lower stitches removed, followed by pus in quantity. Involvement deeper not certain. Lochia foul, contained no pus.

Dec. 17. Temperature 99°. Pulse 90. Draining pus by vagina. Abdominal wound opened up. Uterine and peritoneal sutures sloughing.

Outcome: This case drained in the abdominal wound and by vagina. There was no sign of peritoneal involvement at any time. Wound was cleaned up with Carrel tubes and strapped together. Closure in 3½ weeks.

MARCH 3, 1923. Mrs. J. O., age 26. Primipara. Eighteen hours in labor. Funnel pelvis. Old tubercular hip, left side. Examined vaginally in hospital four or five times. Head in pelvis. Cervix dilated fully; membranes ruptured. Hirst operation went uneventfully and patient returned to bed in good condition. Uterus was slightly atonic, but responded to repeated doses of pituitrin and massage of the fundus.

MARCH 8. Temperature 102°. Pulse 120. Physician in charge opened up the dressing and found pus oozing through the stitch interspaces. All sutures were removed and wound left open. Slight pus appeared in lochia.

MARCH 9. Uterus opening up, pus draining from vagina. Temperature 99°. Pulse 100. Patient comfortable.

Outcome: Carrel treatment was instituted and carried through until wound was clean. Wound closed tight in a little over three weeks.

Patient did not report either to her own doctor or to me for after-examination.

Wound sepsis is fairly common in these cases, varying from a small stitch abscess to a wide open fat layer without deeper involvement, although the possibility of extension with sloughing of the peritoneal and uterine sutures must be kept in mind, and all cases of early temperature should be inspected for superficial wound infection. If such is discovered, the wound can be opened up and Carrel tubes laid in, which will immediately halt the sloughing process and clean up the infection in a very few days.

Mild uterine infection without wound involvement is interesting in that despite the low cervical incision, it is not affected and remains sealed. These cases are also not uncommon, and suffer no more ill effect than the straight supraemia after normal delivery.

It is hardly conceivable that any of the above cases would have stood these infections had classical caesarian been done. I have described these septic cases in support of the isolation feature, in the transperitoneal operation, accomplished by joining the layers.

I have had the opportunity of doing the second caesarian in only two of the cases, but was impressed with the absence of adhesions and scar. Their previous operations were clean.

APRIL 5, 1921. Mrs. M. F., age 24. Primipara. Dwarf with rachitic pelvis. Eight hours of labor. Head barely through the brim; cervix three-quarters dilated with unruptured membranes. Hirst operation with uneventful recovery. Normal living child.

MAY 13, 1923. Allowed five hours of labor for dilatation of cervix. Second Hirst caesarian. Abdominal scar was resected down to peritoneum. Peritoneum picked up high and opened. There were no adhesions except at the vesico-uterine reflection, where a thin two-inch band of peritoneum stretched up to the anterior abdominal wall close to the pubis. The Hirst technique progressed without difficulty; the bladder separating well and the uterine perito-

neum also. The cervical space was not contracted and the layers were not torn during extraction. Normal living child delivered. A cervical scar was not defined on closest examination.

JAN. 15, 1920. Mrs. J. O'L., age 28. Primipara with justo-minor pelvis. Twenty hours of labor with floating head. Membranes ruptured and examined vaginally several times. Hirst operation and uneventful recovery except for slight superficial wound sepsis. Normal living child.

FEB. 9, 1922. Second Hirst caesarian. Allowed seven hours of labor. Abdominal scar resected down to peritoneum. Peritoneum opened high and examination made for adhesions. A few very small bands ran from the utero-vesical reflection to the anterior abdominal wall as in the other case. Bladder separated with a little difficulty and caused some extra bleeding, but was accomplished without untoward happening. The layers separated easily and the cervical space was not contracted. Normal living child. Cervical scar was not evident on examination.

It has not come to my attention that any of these cases in which I have done Hirst transperitoneal caesarian section have ruptured the uterine scar in subsequent labors. While this grave accident, I suppose, is not impossible, it must certainly be extremely rare in the cervical cases because, in going through the literature, I was unable to find a single case of rupture. The above cases do demonstrate the safety of test of labor and the possibility of using the same technique without difficulty in a second transperitoneal caesarian. I feel that it would indeed be presumptuous to express a decided opinion on cervical scars with an experience of only two examinations. The findings in these, however, do coincide with what other advocates of the cervical operations have described on their repeat cases.

RESULTS

The total of forty-three cases were done in private practice and mostly in small private hospitals and under varying conditions. All except one—the case herein mentioned—had some labor, enough to dilate partially the cervix. Many were in advanced labor when first seen. A large number had been examined vaginally at least once, and instruments were applied in one case only. It is interesting to mention that this case did not go septic, as might be expected. There were no maternal deaths, two stillborn babies, and one atelectatic death. The cases were entirely free from any peritoneal reaction indicative of peritonitis.

CONCLUSIONS

In the Hirst transperitoneal caesarian section, the peritoneal cavity is protected from the spill of operation, and there is no handling of bowel; therefore shock and post-operative intestinal complications are minimized.

The layers are rapidly sealed and in the case of puerperal septic uterus, the drainage is extraperitoneal.

There can be few intraperitoneal adhesions.

Transperitoneal cervical caesarian can be repeated.

The operation is applicable in both clean and infected cases.

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Meckel's Diverticulum in a Left Inguinal Hernia

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THE following case is reported because of the comparatively rare condition it illustrates, and also to show the difficulty often encountered in making a correct diagnosis in children presenting abdominal symptoms.

Barney A. (Record No. A50150), age 8½ years, entered The Children's Hospital June 22, 1922, with the following story: The family and past histories were not important. Two days before admission, the boy complained of severe abdominal pain "all over." This pain did not become localized, was not accompanied by nausea or vomiting, and there was no clear story of the pain being intermittent in character. The bowels moved that night, following the administration of a cathartic. No blood was noted in the stool. The pain continued "about the same" and on the morning of admission his attending physician found the temperature to be 102° and sent the boy to the hospital with a provisional diagnosis of acute appendicitis. There had been no nausea or vomiting since the onset.

On admission the essential physical findings were as follows: The boy apparently was not in any great pain. His posterior pharynx and tonsils were considerably reddened, but no membrane was present. The lungs were clear and the heart normal. There was some tenderness in the region of the umbilicus, but no muscular spasm or rigidity, and no mass was felt. No hernia was found in either inguinal canal, and the rectal examination showed nothing abnormal. The temperature was 102.2°. The leukocyte count was 24,000, the urine normal.

The boy was examined by two of the Visiting Staff and because of the evident upper respiratory infection and the absence of definite signs

in the abdomen, it seems better to place the patient under observation, for a time, before performing an exploratory operation. The bowels moved freely after giving an enema and within thirty-six hours all abdominal symptoms had subsided. The temperature came down to normal and at the end of five days the boy was discharged.

In September 1922—three months after the first admission, the boy was brought to the Out Patient Department with the story that for the past week he had had moderate pain in the region of the umbilicus directly after eating and lasting only for a few minutes. He was otherwise well and the physical examination was negative. His diet and faulty habits of eating were considered the cause of his pain and he was given general instructions to overcome this.

In May 1923—about one year after the onset of his first symptoms, he again came to the Out Patient Department. There had been no trouble since his last visit until four days before entrance when the boy's mother noticed a lump in his left groin. She said it had not been there before, that it had persisted and was somewhat tender to the touch. There was no history of local inflammation, intestinal symptoms, or trauma.

Examination showed an elliptical swelling in the left inguinal region extending from about the mid-point of the canal to the top of the scrotum. It felt cystic, was not reducible and was about the size of a small plum. Just over the pubic bone, the mass was rather irregular and seemed slightly indurated and was also slightly tender. The testis was just below this mass and appeared normal. The boy was admitted for operation with the provisional diagnosis of encysted hydrocele of the cord.

Operation—The usual hernia incision was made over the inguinal canal, just above and parallel to Poupart's ligament. The fibres of the external oblique fascia were split from the external ring to just above the internal ring. The cremaster was split and the hernial sac exposed. On palpation the sac seemed to contain a loop of bowel. The sac was carefully opened and showed a structure about the thickness of the little finger, and similar to the small bowel of an infant. Gentle traction showed that this structure arose from a loop of small bowel which was easily pulled through a rather large internal ring. The point of its origin on the bowel was that part which is farthest away from the mesenteric attachment. The tip of the diverticulum was adherent to the lower end of the hernial sac, which, in turn, was adherent to the structures at the top of the scrotum. These fresh adhesions were readily separated and then enough of the small bowel was delivered through the internal ring to permit the base of the diverticulum to be clamped, ligated and cut. The stump was inverted and buried with a purse string suture of silk. This did not unduly diminish the lumen of the bowel. The usual hernia repair followed and after an uneventful convalescence the boy was discharged. He has remained free from symptoms according to the report of his last visit to the Out Patient Department.

The specimen was 4 cm long and 1 cm in diameter throughout its length, except at the terminal portion where there was some swelling and other macroscopic evidence of recent acute inflammation. There was no mesentery.

Microscopic section showed normal intestinal structure, but no microscopic evidence of previous or present disease, other than the slight plastic exudate which caused the serosa to become adherent to the tip of the hernial sac. In view of the negative findings in so many appendices removed after an undoubted acute inflammation has subsided, I do not think the microscopic findings here would rule out previous trouble.

The case is interesting in that the abdominal symptoms occurring a year previous to operation were in all probability due to a mild degree of diverticulitis, though at the first visit they closely simulated appendicitis. When operation is done in this sort of case there is always the danger that the operator may overlook the true condition. Such an instance is reported by Drummond. In the writer's case we were spared that danger by the concurrent upper respiratory infection which caused the operation to be postponed.

Wellington reports 322 cases of acute abdominal conditions due to some involvement of Meckel's diverticulum. In fifty of these cases, or 15%, there was an inflammatory process of the diverticulum itself. This diverticulitis va-

ried in degree from mild catarrhal inflammation to gangrene with perforation and peritonitis. He says that the symptoms closely resembled acute appendicitis and in practically all instances acute appendicitis was the pre-operative diagnosis. We were presumably dealing with just such a mild inflammatory condition at the time of the boy's first admission.

At the patient's second visit the story of the pain coming on after eating would seem to point toward some mechanical factor. Meckel's diverticulum is often the cause of intussusception. Of Wellington's series, in 59 cases or 18% the diverticulum was the advancing point in the intussusception. Hertzler & Gibson in their article on Meckel's diverticulum as a cause of intussusception call especial attention to the frequency of repeated mild attacks in the histories of the cases coming finally to operation. They also note that the tenderness and muscle spasm are less marked than in inflammatory conditions and that bloody stools are far less common, than in the ordinary intussusception of infancy and early childhood. When a Meckel's diverticulum causes an intussusception it seems that the diverticulum is of the type here reported; that is, its distal end is free and has no fibrous band that represents the obliterated omphalomesenteric duct.

While a Meckel's diverticulum may cause an intussusception at any age, the average age in Hertzler & Gibson series was 13 years and 50% were under 10 years. These authors also note the same striking difference in the history between the ordinary intussusception seen under two years and that seen in older children namely that there is so frequently a story of repeated attacks in older patients. In Wellington's series the average age was 14 years.

The commonest cause of obstruction in patients with a Meckel's diverticulum is that due to bands from the tip of the diverticulum to the umbilicus or elsewhere. These fibrous bands represent the obliterated omphalomesenteric duct. This was found in 144 cases in Wellington's series or 44%. The symptoms are usually those typical of acute intestinal obstruction.

In 27, or 9%, of Wellington's series the Meckel's diverticulum was found in the contents of a hernial sac, about one half being inguinal and one half umbilical, with two cases reported where it was found in a femoral hernia.

Porter also reports that in 10% of his 184 cases of intestinal obstruction due to a Meckel's diverticulum, the diverticulum was found in a hernial sac.

Keene says that Meckel's diverticulum is found in 1 to 2% of all bodies and that it "not infrequently forms contents of hernial sac."

Halstead estimates that 6% of all cases of acute intestinal obstruction are due to some involvement of a Meckel's diverticulum.

In Bunt's article referred to by Porter are

two cases where the Meckel's diverticulum was reported to be in a left inguinal hernia. He says that it "is usually found within the sac with intestinal coils to which it is attached. More rarely it is found alone, that is, a true hernia of Meckel's diverticulum." His own case was a true hernia of Meckel's diverticulum in the right inguinal canal. Both the left sided inguinal hernias containing a Meckel's diverticulum referred to by Bunts were reported first by other writers, one by Thompson and one by Webster. The writer's case was a true hernia of Meckel's diverticulum in the left inguinal canal.

Lastly it is interesting to observe that in the present case although the Meckel's diverticulum entered a left congenital inguinal hernia and

became sufficiently inflamed to cause adhesions at its tip, it gave little or no abdominal symptoms. That it was potentially a source of great danger is clear. That the diagnosis at all three admissions was wrong is also clear. It may be said, however, that congenital inguinal hernia in children is very easily overlooked unless the sac be large, or contains some of the abdominal contents, or unless there is a history of tumor in that region.

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Report of a Case of Encephalitis Lethargica, with Markedly Choked Discs in which a Diagnosis of Brain Tumor Was Made. Ocular changes in Encephalitis Lethargica

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[Read before the New England Ophthalmological Society]

IN the course of routine visits to a small factory in Boston, J. J. O'K., a healthy youth of about 20, was found to be complaining of dull headaches which had been persistent for over a period of nearly two weeks. The headaches had no special location, persisted throughout the day and were occasionally associated with a certain amount of nausea and general feeling of drowsiness.

Examination and questioning of the patient produced a history which was not important except for the story of inco-ordinated movements of the left arm which had started during childhood after an attack of tonsillitis, and had occurred frequently since. At the time of the examination this phenomenon was much increased. There was no loss of strength in the left arm, but some spasticity. The left leg was slightly spastic, with knee jerks increased and definite ankle clonus. Postural and vibration sense was preserved in the left arm and leg. Cranial nerve examination showed a question of facial weakness; the tongue was protruded somewhat to the left and there was internal strabismus of the left eye. There were double choked discs, two to three diopters.

The patient complained of an increasingly sleepy feeling, but could not sleep at night. He also complained of occasional diplopia. This was substantiated during the examination. He was seen by another physician at our request, and a tentative diagnosis of Encephalitis Lethargica made.

The patient was sent to one of the large hospitals in the city for treatment. Here our find-

ings were substantially confirmed with some additional evidence derived from the lumbar puncture.

The hospital records are summarized as follows:

Patient, J. J. O'K., single, age 20. Admitted May 9th.

Present illness. At entrance complained of headaches and epigastric pains for three weeks, with diplopia for past few days. The present illness began while at work three weeks ago with epigastric pain, associated with sharp frontal headaches, occurring three to five times a day, and lasting for half hour or more. In the beginning there was some morning vomiting, usually before breakfast. The pain was associated with constipation, which required Epsom salts for relief. The epigastric pain increased in severity, being so bad at times as to cause the patient to double up, to be absent from work and to lose sleep. At first the pains were periodic and colicky, being relieved somewhat by frequent eating. Recently the pain has been continuous and much worse. No bloody stools were noticed. The past few days the patient says he has been "seeing double" with regard to both near and distant objects. His family told him he was getting cross-eyed. There is no history of paralysis or convulsions, but there has been considerable tremor and general weakness. The patient feels drowsy, but has slept poorly at night for the past week. The symptoms of gastric pain and headaches have improved in the last few days.

Family History is negative. Occupational history is negative. Past history showed measles in childhood, operation for tubercular glands of the neck, and slight operation for abscess of left leg. Normal weight is said to be 140 pounds, and present weight 127 pounds. The patient said that loss of weight had occurred in the last month. Physical examination showed acne on face and chest, slight pyorrhoia. Heart, chest and abdomen were negative, blood pressure was systolic 115, diastolic 80.

Special examination showed right knee jerk to be greater than the left. They both were somewhat increased. Left ankle was spastic with some clonus. Eye examination showed internal strabismus of the left eye, with choked discs of both eyes. The admission temperature was 100, and this varied between that and 99 until the 13th, or the fifth day after entrance, when it went to normal. Pulse was 70 and respiration 20 throughout the patient's stay in the hospital. Blood examination showed normal differential count of the stained specimen. The white count varied from 8500 to 10000. Urine and stool examinations were negative. On the 10th, the day after entrance, lumbar puncture showed 15 cc of clear yellowish fluid, at a pressure of about 220 mm, with a pulse variation of two to three and a respiratory variation of three to five. The spinal fluid showed a cell count of 12 cells per cm., mostly lymphocytes. The protein was slightly increased, and sugar normal. The spinal Wassermann was negative, as was also blood Wassermann.

On the 13th, eye consultation showed choked discs in both eyes, the left eye showed horizontal nystagmus, and the right eye very slight horizontal nystagmus. The opinion was given that the tracts from the vestibular apparatus in the left peduncle region were involved. On the same day X-rays of the gastro-intestinal tract and of the skull were negative.

On the 15th, ear consultation showed that the canals on the left reacted normally to the Barany test. The vertical canals on the right gave no response. These findings were considered consistent with the sub-tentorial lesion.

The result of these consultations, together with the history of the frontal headaches, severe epigastric pains, morning vomiting, and diplopia, plus the choking of the discs, caused the diagnosis of brain tumor to be considered likely.

On the 14th, the patient was seen by the surgeon, who thought that the patient could be helped by operation, if vision should fail.

On the 17th, there was no special clinical change, except that the patient seemed brighter, but still had constant dull headaches. He was discharged on the 17th against advice, with the diagnosis brain tumor, probably of the left cerebellar or acoustic nerve.

Four days after discharge we saw the patient, who expressed himself as being much better, and able to sleep well at night. The headache had gone, and nearly all the symptoms had markedly decreased, with the exception of the somewhat spastic condition of the left arm, which he had always had. He was told to rest at home, and was seen by us a day or two later. It was found that the choking discs had markedly decreased, particularly in one eye, and that the visual fields were quite normal as they very likely had been during the entire course of his illness, although these had apparently not been tested during his hospital stay.

On reporting a week later he was found to be entirely recovered, about two or three pounds heavier, and apparently perfectly normal. The eye findings followed the patient's discharge from the hospital were as follows:

Vision both eyes normal. Muscle balance normal, with no limitation of motion. There was rotary nystagmus on looking to left. Pupillary reactions normal. Fundi,—choked discs of about 2D. Rare hemorrhage in region of discs. Veins engorged and tortuous. Within five weeks the fundi became absolutely normal. The rotary nystagmus became much less and patient's eyes were essentially normal. Several fields were absolutely within normal limits with no enlargements of blind spots.

At the date of writing the patient is well, had no symptoms of any sort since the last time he was

seen. He worked in a laundry for two or three months, and since that time has been doing healthy out-of-door work. He has gained ten pounds, and in addition to this had done some gymnasium work in the evenings, which has been mostly boxing.

At this date the case presents all the aspects of a rather unusual case of Encephalitis Lethargica, which was somewhat clouded by the rather unusual finding of choked discs. This finding, together with the other ocular manifestations is consistent with Encephalitis Lethargica, as a review of the literature will show.

In the earlier stages of the epidemic of encephalitis lethargica, it seemed to be the general impression that fundus changes did not occur in this disease. As more and more cases were reported, it was most interesting to note the swing of the pendulum, so that at present, fundus changes, although by no means of common occurrence, are recognized as being part of the picture in a small percentage of the encephalitis cases. Tucker¹ reports two cases of choked discs. Woods² reports a case of optic neuritis. Von der Heydt³ reports a case of hemorrhagic retinitis. Holden⁴ reports four cases of blurring of the disc, and one case of papilloedema. Symonds⁵ reports four cases with changes of nerve head, ranging from a mere blurring to a papilloedema, of 2D. Duverger and Barre⁶ report two cases of optic neuritis. Buzzard⁷ reports two cases showing a slight swelling of the discs. Spaeth⁸ mentions a case of optic neuritis of a mild type. Monro⁹ mentions a case of marked optic neuritis with hemorrhages. Libby¹⁰ reports two cases with nerve head changes, the disc in one case showing an elevation of 7.5 D. Greenwood¹⁰ and Woods¹⁰ also reported cases with papillitis. Cameron¹¹ reports two cases of neuroretinitis and states that about one half of the cases of encephalitis lethargica have neuroretinitis. We believe his estimate is perhaps rather too high.

The question arises as to the pathological conditions which could give rise to optic neuritis and papilloedema. According to most authorities the pathology of encephalitis lethargica is a congestion of the pia and encyphalon with a cellular infiltration around the blood vessels, and the concurrence of a meningitis in certain cases. The matter of increased intracranial pressure is also to be considered. Thus the optic nerve changes may have their origin in increased intracranial pressure per se or in meningitis. Tucker¹ states that as a rule you get increased intracranial pressure. Woods² believes that the intracranial pressure is usually not increased. Holden⁴ thinks that papilloedema in Encephalitis lethargica is probably the result of increased intracranial pressure in most cases, although in some cases it is perhaps due to meningitis. In two cases reported by Buzzard⁷ there was increased intracranial pressure, which at time of operation was found to be

due to subdural extravasations of blood. These cases, however, are undoubtedly very rare and the hemorrhages merely unusual complications of encephalitis lethargica. Mills¹² gives what seems to be the most satisfactory summary of the question in stating that: papilloedema is not per se a symptom or sign of encephalitis. It may, however, and does occur somewhat, rarely in the occurrence of this infection, this being due to the concurrence of meningitis with the encephalitis. Whether or not papilloedema is present, is in some degree dependent upon the locality of the encephalitis and meningitis. In other words, it would be more likely to be present if the lesion of the encephalitis or meningo-encephalitis was in the neighborhood of the chiasm or anywhere at the base.

The other ocular signs of encephalitis lethargica occur much more frequently and are well recognized. Woods² states that the usual symptoms are

- 1 Paralysis of internal of external eye muscles
- 2 Ptosis
- 3 Nystagmus, or nystagmoid movements. Holden⁴ in analysing one hundred cases of encephalitis lethargica finds the following:
 - 1 Opticus symptoms—four cases of blurring of the disc, one case of papilloedema.
 - 2 Oculomotor and abducens symptoms
 - 56 Cases of Ptosis
 - 55 Cases of Dyplopia
 - 32 Cases of Nystagmus
 - 3 Pupils
 - 15 Cases of irregular
 - 20 Cases of unequal
 - 35 Cases of sluggish or absent reaction
 - 4 Weak accommodation, one case
 - 5 Facial nerve symptoms, 73 Cases

Some rarer cases reported are:

 - 1 Homonymous hemianopsia—Symonds⁵ and Buzzard⁷
 - 2 Ring scotoma, enlarged blind spots, and contracted fields—Waardenbrug¹³
 - 3 Optic Atrophy—Karyophyllis¹⁴
 - 4 Bilateral Ophthalmoplegia—Oonuff¹⁵

As to the Barany findings, it seems to us that they are merely confirmatory and in this case confirm encephalitis just as much as brain tumor, for involvement of the cranial nerves is certainly common enough in encephalitis and there is no reason why the 8th nerve should not be involved as well as any of the others.

In short this case shows the importance of differentiating between brain tumor and encephalitis lethargica. In certain cases the differential diagnosis is extremely difficult. Greenwood¹⁰ mentions a case of encephalitis lethargica with papillitis which was watched for six months to determine whether he had brain tumor or not. Libby¹⁰ states that headaches persisting for weeks or months may be wholly dependent on encephalitis and not necessarily a sign of brain

tumor or abscess, even in the presence of papilloedema. Certainly a safe course in such an instance is to make repeated tests of visual acuity and fields and if these are not affected the patient may be kept under observation without endangering his vision until a definite diagnosis is established.

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A WORD ABOUT ILLUSTRATIONS

WHEN submitting manuscripts, accompanied by charts, sketches, etc., it would be well to keep the following details in mind:

All typewritten copy must be perfect; there should be no strike-overs; please be sure the type is clean so that the entire letter or figure will appear; all lines should be in black, not blue, ink.

If you will observe these suggestions, it will relieve this office of the necessity of redrawing charts and sketches or returning them to the author for correction.

Your co-operation will be appreciated.

PROHIBITION HAS NOT MADE LUNATICS

ALCOHOL insanity has not increased since Prohibition, we are emphatically assured in a bulletin of the National Committee for Mental Hygiene. On the contrary, it is stated that as compared with 1919, the year 1922 shows a decrease in the number of mental cases in which alcoholism was a leading symptom. We read, quoting Science Service's *Daily Science News Bulletin* (Washington):

"Data from approximately 100 hospitals for mental disease, to which during 1922 were admitted about 35,000 cases, showed about 1250 with alcoholic psychoses, or less than 4 per cent. of the whole. In no State studied was the percentage over 10, and in some it was as low as 1 per cent., the report states. Taking the intemperate users of alcohol among all types of mental disease admitted to State hospitals for the year 1919, and to the same group of hospitals for the year 1922, we found that in the former year 15 per cent. of all new cases were intemperate users of alcohol, while in the latter year the percentage was 13. It is absurdly misleading, if not worse, to say that alcohol is an increasing factor in the production of mental disease."

—*The Literary Digest.*

MEDICAL PROGRESS

Progress in Pediatrics

BY JOHN LOVETT MORSE, A. M., M. D.

DURING the year 1923 more than 1500 articles dealing strictly with pediatrics were abstracted in the International Survey of Pediatrics. It is evident that it is entirely out of the question to pick out even the most important articles from such a mass, or to give even a reasonable summary of what they represent. In general it can be said that they represent very little progress forward. Most of the progress is round and round or from side to side, while a certain amount of it is backward. If even a small part of this vast amount of material has been read by general practitioners, however, the general knowledge of pediatrics must have been improved. In fact, there is no doubt that the knowledge of physicians, and also of the laity, regarding the care of infants and children and of their diseases and the treatment for them is steadily progressing, and in the right direction. This unfortunately cannot be said of the present generation of medical students, who are being taught an immense amount of laboratory technic and abstruse theories, but are not learning how to tell a sick child from a well one or what to do for a child with ordinary simple ailments.

It is not only impossible to abstract the pediatric literature of the world, but also even that of this country. The work here, however, is fairly representative of what is being done elsewhere. I shall, therefore, simply attempt to summarize some of the articles which seem to be of direct clinical value to the general practitioner. The greatest real progress has been made in relation to the etiology and treatment of scarlet fever, and to a less extent of measles. These subjects have recently been discussed in the JOURNAL.

INANITION FEVER

Dehydration fever of the newborn describes the condition better than inanition fever. Balcar, Sansum and Woodyatt (*Archives Internal Medicine*, 1919, vol. 24, page 116) demonstrated in 1919 that fever can be produced by dehydrating animals. The reason for the supposition that the transient fever of the newborn was due to dehydration was based on the fact that the fever usually occurs at the time of the greatest loss of weight. It was assumed that weight loss was due to water loss. Grulee and Bonar (*American Journal Diseases of Children*, 1921, vol. 22, page 44) objected to this explanation, because many newborn babies lose weight without fever and others have fever without much loss of weight. Bakwin (*American Journal Diseases of Children*, 1922, vol. 24, page 497) points out that the water content of babies varies largely at birth. One baby may lose

much more water, therefore, without being dehydrated than another, because of its water reserve. Moreover, with equal loss of weight and external evidences of dehydration the serum protein concentration is not affected in the same way. The plasma water per cent may increase without increase in weight. Loss of weight and impairment of the skin elasticity are not necessarily coincident with variations in plasma concentration. He (*American Journal Diseases of Children*, 1922, vol. 24, page 508) says that conclusions cannot be drawn from the weight curve alone of the newborn baby. The water content at birth must also be considered. Variations in the water content at birth explain dehydration fever without much weight loss and lack of fever with considerable weight loss. He found that in babies with fever without other evidences of disease the plasma concentration was increased. It was increased even when the loss of weight was slight. A similar increase in serum protein per cent, which means a diminution in the plasma water and, therefore, plasma concentration, was not found in babies ill with infections or in babies having fever from pyrogenic substances in the milk. He found that the fever could be reduced by the administration of liquids.

Faber (*American Journal Diseases Children*, 1922, vol. 24, page 56) practically prevented inanition fever by complementary feeding and Stewart (*Journal American Medical Association*, 1922, vol. 78, page 1868) found that the administration of ten per cent. lactose solution reduced the frequency of inanition fever.

The administration of water or sugar solution by mouth is usually sufficient to prevent or cure dehydration fever. In severe cases, however, the treatment of dehydration recommended by Schloss (*Boston Medical and Surgical Journal*, 1922, vol. 187, page 427) may be used in a modified form. From 90 to 100 c.c. of isotonic salt solution may be given subcutaneously and repeated as necessary, or 125 c.c. may be given intraperitoneally. Intraperitoneal injections should not be repeated under twenty-four hours.

TREATMENT OF THE CEREBRAL SYMPTOMS OF ACUTE NEPHRITIS

Blackfan and Mills (*Transactions of the American Ped. Society*, 1923, vol. 35, page 197) argue that uremia, or the cerebral symptoms of acute nephritis, develops when there is edema of the brain and that the high blood pressure which is associated with this group of symptoms may be explained as a compensation mechanism of the heart to maintain adequate cerebral circulation, which is disturbed by the edema. They say that it has been shown that the administra-

tion of hypertonic solutions of various salts and non electrolytes reduce brain volume. It seemed to them that it was reasonable to attempt to relieve intracranial tension occurring in the course of nephritis by the injection of hypertonic solutions. They used a two per cent. solution of the hydrated magnesium sulphate intravenously, injecting, at the rate of 10 c.c. per minute, amounts of about 15 c.c. per kilogram of body weight. They found that the blood pressure promptly falls after the introduction of about 25 c.c., and remains at a low level for from five to twelve hours. After repeated injections at twelve or twenty-four hour intervals the blood pressure permanently remains at a low level. Abatement of the cerebral symptoms—headache, visual disturbances, convulsions and vomiting—follows promptly the lowering of the blood pressure. The dehydrating effect is manifested by diuresis, diaphoresis or by catharsis. The subsequent course of the nephritis is not altered. They do not attempt to discuss whether the action of the magnesium salt is due to a specific dehydrating effect on the cell colloids or to a chemical reaction. They report several cases showing the good effect of this method of treatment.

RICKETS

Much work has been done in rickets along the same lines as in the previous two years. Nothing very new has been made out, however, the work of previous years simply having been verified.

Hess (Journal American Medical Association, 1923, vol. 81, page 15) protected rats against the development of rickets by giving them the yolk of egg and was also able to cure them of rickets with the yolk of egg. The white of egg, however, increased rickets. Hess also protected twelve infants from rickets by giving the yolk of one egg daily. He found that the yolk of egg kept up the blood phosphorus and that the calcium content of the serum was unusually high. The egg yolk was less potent as a curative.

Casparis, Shipley and Kramer (Journal American Medical Association, 1923, vol. 81, page 818) refer to the work of others and report the healing of rickets in seven children by the addition of one or two eggs daily to the diet. The inorganic phosphorus was raised and healing was manifest within three weeks. They quote McCollom to the effect that the addition of egg yolk to the diet of rachitic rats initiates healing in six days.

There seem to be certain advantages in using the yolk of egg rather than cod liver oil for the prevention and cure of rickets in infancy. It is rather less likely to disturb the digestion and does not make the babies smell so much like fishes. One of the best ways to give it is hard boiled and grated.

Hess and Weinstock (American Journal

Diseases of Children, 1924, vol. 27, page 1) found by experiments on rats, that cod liver oil when given to the mother during pregnancy, cannot be relied on to protect the offspring from rickets. Furthermore, the active principle of the oil is not excreted in the milk in adequate amounts to protect the young against rickets when they are subsequently placed on rickets-producing diets. On the other hand, cod liver oil fed directly to the young during the latter half of the lactating period does confer subsequent protection.

THE TREATMENT OF SPASMOPHILIA

It has been known for a number of years that there is a marked diminution in the calcium of the blood in spasmophilia and for this reason various salts of calcium have been given in the treatment of this disease. Clinical experience has shown that the calcium salts are of benefit and it has been found both clinically and experimentally that the chloride of calcium is more effective than the lactate. It was supposed that the action of the calcium salts was due simply to the calcium which they contained.

Freudenberg and György (Klin. Wehnsehr., 1922, vol. 1, page 410) found that ammonium chloride relieved the symptoms as well as calcium chloride and Scheer (Jahrb. f. Kinderh., 1922, vol. 97, page 130) found that the addition of hydrochloric acid to the milk caused the disappearance of the symptoms. Gamble and Ross (American Journal of Diseases of Children, 1923, vol. 25, page 470) showed that the ingestion of calcium chloride and hydrochloric acid and ammonium chloride produced the same acid effect in the body. This effect consisted of a reduction of the plasma bicarbonate, due directly to an increase in the chlorides, and an elevation of the hydrogen-ion concentration of the plasma. Both of these alterations appeared to produce an increased ionization of calcium. In consequence, a physiologically adequate concentration of ionized calcium is obtained from the lowered total calcium content. The therapeutic action of calcium chloride and hydrochloric acid in tetany is, in this respect, identical with that of ammonium chloride, but, in addition, ingestion of these substances causes an increase in the total calcium of the plasma. There is, thus, theoretical ground for regarding calcium chloride and hydrochloric acid as more efficient agents than ammonium chloride in the treatment of spasmophilia.

Because of the frequent association of rickets and spasmophilia and because rickets is helped by both cod liver oil and sunlight, it was suggested that spasmophilia might also be helped by cod liver oil and sunlight. Cod liver oil, however, has no direct action on spasmophilia. Huldseinsky (Ztschr. f. Kinderh., 1920, vol. 26, page 207) and Sachs (Jahrb. f. Kinderh., 1921, vol. 93, page 167) were the first to show that spasmophilia was relieved by the ultraviolet rays.

Several investigators have shown that the ultraviolet rays increase the serum calcium. Hoag (American Journal Diseases of Children, 1923, vol. 26, page 186) treated eleven cases of spasmophilia with the ultraviolet rays. These cases all showed the typical mechanical and electrical hyperirritability characteristic of the disease and a low serum calcium concentration. Six of the cases showed very active signs of the disease. Five had no active symptoms, but well marked evidences of hyperirritability and a low serum calcium concentration. The source of the ultraviolet rays was an all-mercury electrode, quartz-encased burner, using 4 amperes on a 110-volt direct circuit. The lamp was placed 50 cm. from the surface of the body. The initial treatment was 2 minutes to the front and 2 minutes to the back of the body, and this was increased 1 minute to the front and 1 minute to the back daily. None of the patients received any other form of medication for the spasmophilia. They were kept away from open windows and were not taken out of doors. They were given cows' milk, plain or diluted, with or without cereal, but no other food. The six active cases all showed steady clinical improvement. Only one patient had a convulsion after the first treatment. The clinical improvement was paralleled by a steady increase in serum calcium concentration. The total length of exposure necessary to cause an increase of one mg. of calcium in 100 c.c. of serum varied from 17 to 65 minutes, with an average of 41 minutes. The rise of calcium was proportionately more rapid in those patients who had the lowest concentration in the serum at the beginning of the treatment. The average number of days under treatment was thirteen. The mechanical hyperirritability symptoms disappeared in from four to eight days.

The five latent cases showed the same steady improvement in symptoms and the same tendency toward an increase in the concentration of the serum calcium.

Two control cases with mild spasmophilia, treated with cod liver oil, failed to show a very perceptible rise of serum calcium in a period of time equal to that required for the cure of the disease by the use of artificial heliotherapy.

INFANT FEEDING HYDROCHLORIC ACID MILK IN INFANT FEEDING

Faber (American Journal Diseases Children, 1923, vol. 26, page 401). $p_{H}5$ is the threshold which the gastric acidity must reach before any of the ferments, except rennin, become usefully active. He speaks of the high buffer content of cows' milk. To 100 c.c. of human milk the equivalent of from 15 to 20 c.c. of tenth normal acid must be added before the threshold acidity of $p_{H}5$ is reached, while to the same quantity of cows' milk from 50 to 60 c.c. must be added. The reduction of buffers has in the past been affected in two ways—dilution and the use of

bacterially soured milk. Unbuffered food stuff, such as carbohydrate, has had to be added to diluted milk because of the accompanying reduction of food value. The compensation is, however, usually partial, so that babies have had to ingest larger volumes than breast-fed infants of food containing much lower percentages of fat. Hence they lose certain benefits incident to an adequate intake of milk fat, such as vitamins and substances necessary to normal stool formation and are subject to the risks of high carbohydrate feeding. Soured milk is especially useful in overcoming the risks of high carbohydrate feeding. The acid reaction and low buffer value of the food are favorable to the action of the gastric lipase. There are considerable objections to bacterially soured milk. There are marked variations in the acid content according to time, temperature and character of culture, it requires 24 hours for preparation and is expensive when bought in the market.

He modifies the reaction and buffer value of cows' milk by the addition of tenth normal (about 0.4%) hydrochloric acid. If enough acid is added to bring the reaction to the assumed threshold value $p_{H}5$, it tastes sour and has a heavy flocculation of casein. The reduction of buffer value to approximately that of human milk was found to give satisfactory results. 25 c.c. of tenth normal hydrochloric acid added to each 100 c.c. of milk does this. He believes that milk thus modified is more nearly physiologic than that with more acid, since it demands from the stomach about the same secretory tasks for acid as does the natural food, breast milk. This milk has a reaction of $p_{H}5$ and is taken by infants without protest. The acid is taken up largely by the basic phosphates, which are converted in part into the more soluble acid phosphates and corresponding chlorides. No "free" acid is present in the milk. He reports favorable results from feeding this to babies. The addition of acid does not aid the digestion of sugars. It increases the tolerance for fat. If sufficient fat is given, good soap stools are obtained.

Contraindication: In very young infants there is less gastric and more intestinal digestion than later, the latter being optimal in an alkaline reaction. This may point to the desirability of increasing the alkalinity of artificial food during the first month, thus lowering the buffer resistance to alkaline change. Six weeks is the earliest time at which acidified milk should be used.

THE ACIDITY OF THE GASTRIC CONTENTS OF INFANTS

Marriott and Davidson (American Journal Diseases of Children, 1923, vol. 26, page 542). As the action of hydrochloric acid in the processes of digestion is largely, if not entirely, due to the number of free hydrogen-ions present,

the determination of the hydrogen-ion concentration is of more significance than the determination of the total gastric secretion by titration methods. Various foods, especially milk, have the property of binding large amounts of acid and converting the hydrogen into a nonionized form, thus, to all intents and purposes, neutralizing the acid. When foods of the type mentioned are given, much of the hydrochloric acid secreted is rendered inactive. Hence, if one is to get an idea of the effective acid concentration, it is necessary to determine the hydrogen-ion concentration at the height of digestion following a regular feeding.

They found that in over two-thirds of 41 normal infants fed on breast milk, the p_u was between 3 and 4. The average for the whole series was 3.75, which is very close to that found by other observers.

They found in 16 infants ill with various infections or suffering from malnutrition the p_u was always above 4, the average being 4.74. That is, the actual concentration of hydrogen-ion at the height of digestion averaged only one-tenth as much as that of normal infants receiving the same food. There was a definite deficiency in the gastric secretion.

When cows' milk is added to an acid, a portion of the hydrogen of the acid is converted into a nonionized form, and the true acidity of the solution is thus greatly reduced. This is due to the fact that cows' milk contains a large amount of "buffer" material; that is to say, substances capable of uniting with considerable amounts of acid or alkali without undergoing a great change in chemical reaction. In cows' milk the chief buffer substances are the phosphates and the calcium caseinate. Approximately one-third of the buffer substances are in the whey and the remaining two-thirds in the curds. Human milk contains a smaller amount of buffer material and, therefore, does not convert as much of the hydrogen of the acid into a nonionized form. The addition of acid to cows' milk results, therefore, in a much slighter change in the hydrogen-ion concentration than does the addition of the same amount of acid to breast milk. In order to bring cows' milk to a p_u of 3 or 4, approximately three times as much acid is necessary as in the case of breast milk. When cows' milk is fed to an infant, therefore, the hydrogen-ion concentration at the height of digestion is less than when an equal amount of breast milk is fed.

When undiluted cows' milk was fed to normal infants the p_u at the height of digestion was 5.3. That is, the effective concentration of acid was less than 1/20 that in the case of breast fed infants. When undiluted cows' milk was fed to babies used to cows' milk the p_u was 4.75, showing that infants fed on cows' milk gradually adapt the gastric secretion to this type of food and secrete a greater amount of hydro-

chloric acid. This partially overcomes the effects of the buffer substances. The average for all the normal babies fed on undiluted cows' milk was 5.1.

When undiluted cows' milk was fed to malnourished infants and those suffering from acute infections, the average p_u at the height of digestion was 5.35. That is the lowest of all the series.

Lactic acid milk containing from 0.5 to 0.7% of lactic acid, prepared either by the action of lactic-acid-producing organisms or by the addition of lactic acid to whole milk, has a considerable portion of its buffer substance neutralized by the lactic acid present. It requires the addition of the same amount of hydrochloric acid to this lactic acid milk as to breast milk to attain the same hydrogen-ion concentration. The average hydrogen-ion concentration in 17 normal infants formerly fed on breast milk was 3.71 as compared with 3.75 in the case of breast milk.

Twenty-six infants suffering from severe malnutrition and infections were fed on lactic acid whole milk. The average p_u at the height of digestion was 4.1, or somewhat more acid than in the case of the same group of infants fed on breast milk.

The Significance of Gastric Acidity: Peptic digestion begins at $p_u 4$ and is optimum at $p_u 2$. It is apparent that in their cases some peptic digestion was possible in over two-thirds of the normal breast fed infants and in a fair number of the infants fed on lactic acid milk. No peptic digestion was possible in the case of infants suffering from nutritional disturbances or infections, whether fed on breast milk or sweet cows' milk. It was possible, however, in a fair proportion of the sick infants fed on lactic acid milk. Even in the case of normal infants fed on sweet cows' milk, the hydrogen-ion concentration was insufficient for any peptic digestion. It is difficult to estimate the importance of peptic digestion in infancy. A considerable portion of the protein of the food certainly passes the pylorus without having undergone any digestion under normal conditions. It may be argued that all of the protein could escape digestion without any disadvantage to the infant. On the other hand, peptones stimulate the flow of pancreatic juice and bile and even the small amount of peptones converted may be of use in this way.

The rennin action on casein occurs at a lesser degree of gastric acidity than does peptic digestion. Casein is well coagulated by rennin at $p_u 5$. With a lesser degree of acidity, the passage of unchanged casein past the pylorus is favored. Either an excess or a deficiency leads to a prolonged emptying out of the stomach. Their observations were that in general a larger portion of the feeding remained in the stomach at the end of two hours in the case of infants

with a deficiency in gastric acidity than in those with an acidity approximating that of normal breast fed infants. They do not believe, however, that the degree of acidity is the only factor influencing the gastric motility in such infants.

An important function of the acid of the gastric juice is its antiseptic action. Marked inhibition of colon, dysentery and typhoid organisms occurs at $pH 5$ and complete inhibition at $pH 4$. A sufficient degree of acidity of the gastric contents, therefore, decreases the chances of infection of the upper intestine with harmful bacteria.

A further function of the acid in the gastrointestinal tract is a stimulation of the flow of pancreatic juice, bile and intestinal secretions. Other acids than hydrochloric have the same effect. It is evident, therefore, that the hydrogen-ion is the active agent and a sufficient degree of acidity of the gastric contents favors intestinal digestion.

It is evident that the acidity of the gastric contents may play an important rôle in the general processes of digestion and in the nutrition of infants. Their experimental results show that marked variations in gastric acidity occur and that, in general, a decrease in acidity is likely to be associated with nutritional and gastro-intestinal disturbances.

Means of Altering the Gastric Acidity of Infants: Acidity may be low as the result of insufficient secretion of acid or the administration of food of such high buffer value that the acid secreted is neutralized. Gastric secretion may be deficient as the result of disease or malnutrition. Improvement of an underlying condition causes improvement in secretion. There is no specific means of increasing the secretion. The acidity of the gastric contents at the height of digestion may be increased to a considerable extent by proper choice of food as regards buffer value. Breast milk has a lower buffer value than cows' milk. Dilution of cows' milk means giving a lesser amount of milk. A dilution of 1 to 3 gives approximately the same concentration of acid at the height of digestion as when the same amount of breast milk is fed. Whey leads to fairly normal conditions of acidity in the gastric contents. These dilutions do not contain sufficient calories. Carbohydrates having no buffer value and cream very little, these have been used to increase the food value. The buffer value of milk is reduced by drying, as a portion of the calcium and phosphate is converted into insoluble tribasic calcium phosphate.

Another method of eliminating the buffer substances of milk is to saturate the buffer with acid. This is equivalent to augmenting the acid of the gastric juice. Hydrochloric acid appears to be the natural acid to add. It is ideal as far as conditions in the gastro-intestinal tract are concerned. Only limited amounts can safely

be added, however, because this acid is not destroyed in the body, but must be eliminated. This throws a rather severe strain on the acid-base regulating mechanism and may lead to acidosis.

Organic acids are not open to the same objections as is hydrochloric acid, since these acids can be completely oxidized in the body. Lactic acid serves well and in reasonable amounts has no harmful effects. Acetic, citric and butyric acids tend to cause diarrhea. Lactic acid, therefore, is the acid of choice. The amount ordinarily found in buttermilk is just sufficient to saturate the buffer substances of milk to such an extent that the additional acid required to bring the hydrogen-ion concentration to the normal average of gastric content ($pH 3.8$) is exactly the same as in the case of breast milk.

In their experience, as good results are obtained by feeding sterile cows' milk acidified by the addition of lactic acid (from 0.5 to 0.7%) as from buttermilk. Such milk may be fed undiluted to even young babies. This method of rendering milk digestible possesses a distinct advantage over the dilution method in that considerably more milk, and consequently a larger amount of food, may be administered. They have developed a system of feeding on this basis, adding corn syrup.

ACIDIFIED WHOLE MILK AS A ROUTINE INFANT FOOD

Marriott and Davidson (Journal of the American Medical Association, 1923, vol. 81, page 2007). They criticize and discard all previous methods of artificial feeding. On the basis of their previous paper they state that cows' milk can be rendered more digestible by the addition of acid and can then be given in considerably larger amounts. They recommend a routine food as follows: a good grade of cows' milk is first sterilized by boiling for 5 minutes, the milk is then cooled and the scum removed. 1 dram of U. S. P. lactic acid is added for each pint of milk, a drop at a time. The milk should be cool, because if it is warm when the acid is added or if the acid is run in too rapidly, large clumps of curds will separate. When properly prepared a smooth, homogeneous preparation should result. The taste, general physical appearance and concentration of acid is the same as in ordinary buttermilk. The milk prepared in this way keeps well, even if not placed in a refrigerator. Its acidity is $pH 4$. This almost completely inhibits bacterial growth.

It is not necessary to dilute this lactic acid milk even for newly born or premature infants. It should be diluted only if it is desired to limit the amount of milk taken without decreasing the total fluid intake. Carbohydrate should be added to lactic acid milk, as the amount of sugar present is insufficient for the needs of the average infant. An ounce of corn syrup should be added to the day's feeding for infants up to

2 weeks of age and from 1 1/2 to 2 ounces for older infants. The syrup is stirred into the lactic acid milk until thoroughly mixed.

They give 6 feedings a day at 4 hour intervals to young or under-nourished infants, 5 feedings otherwise. The amount at a feeding is determined by the appetite and symptoms presented by the baby. Roughly the average infant takes 2 ounces at 1 week, 3 or 4 ounces at a month, 6 ounces at 4 months, and 7 or 8 ounces from the 6th month on. The composition of the food is, therefore, approximately the same throughout the whole first year, although the proportion of sugar is relatively higher for the younger than for the older infants. The general formula is one ounce of syrup with a pint of lactic acid milk.

They justify this universal formula by the fact that the formula of breast milk is the same throughout the nursing period. They also say that the reason that the strength of the milk has to be varied in ordinary modifications is the incapacity of the young infant to digest sweet cows' milk, which incapacity diminishes with age. They admit that it is at times advisable to alter the formula to meet definite indications. Skimmed milk may be substituted for all or a portion of the whole milk. The amount of added syrup may be decreased or increased. Dilution of the formula defeats the object aimed at.

During the last two years 90% of the infants in the wards of the St. Louis Children's Hospital have been fed on this formula. They claim extremely good results. They also state that more than 1000 infants in St. Louis have been fed on the formulas described with generally satisfactory results.

Marriott and his co-workers apparently are satisfied when the food has left the baby's stomach, and seem to disregard almost entirely intestinal digestion and intestinal bacterial activity. They apparently also do not consider what the effect of their food may be on the general metabolic processes of the body. It is probable that this neglect is apparent rather than real. I do not feel competent to discuss these questions in detail, but I cannot help wondering what effect this food may have on the intestinal digestion and the action of the intestinal bacteria, as well as on the metabolism of the salts. It also seems to me possible that so large a proportion of protein in the food may throw an unnecessary strain on the metabolic processes and on the eliminative organs. It certainly seems wasteful of energy to use protein in place of fat and carbohydrates for the production of heat. I am unable to see any advantage in giving high proteins, as is the case in this food and as is the fashion at present, over the custom of a few years ago of giving a relatively low protein with a larger proportion of fat and carbohydrate. When the low protein is given, it is unnecessary to give acids in order to reduce the buffer value

of the milk, while the nutritive value of the food is easily made up with fat and sugar. The quantity of the food given when these mixtures are used seems to me unimportant, as it is no greater than the amount of breast milk ordinarily taken. It seems possible to me, however, that babies may suffer from the lack of fluid when taking the limited amounts of the food recommended by Marriott.

Many of the procedures in common use at present are, like the use of acids in the food, made necessary by the high percentages of protein in the food. If the quantity of protein in the food is not materially greater than that required to supply the protein needs of the baby, it is seldom necessary to boil the mixtures, to add acids or to acidulate them with bacteria.

The tendency of recent years in infant feeding in this country to endeavor to develop a routine food for all babies is evident both in this preparation, recommended by Dr. Marriott, and in the S. M. A., recommended by Gerstenberger. It may be that the former idea, to fit the food to the individual baby, was a mistaken one and that a routine food is better. It may be that the tolerance of babies for all sorts of foods is so great that it makes little difference what they are given. Time alone will show. To me, however, the present tendency in infant feeding seems to be more in the nature of change, simply for change's sake, and of progress backward rather than of progress forward.

The Germans are working along the lines which were followed by Herter and Kendall some fifteen or twenty years ago in this country. They are paying a great deal of attention to the bacteriology of the stools, which is attracting no attention in this country. They are also investigating fermentative and putrefactive processes in the intestines, their relations to the food ingested, and the bacteriology of the intestines. In this connection they are making use of the newer chemistry regarding the buffer values of different foods. They are also studying the protein contents of foods, especially with relation to the various amino acids. It is difficult to know whether it is the Americans or the Germans who are on the right track. It may be that they are both on the same circular track, running in the same direction. If so, the opinion as to which one is a lap ahead and which one is a lap behind, depends on the point of view of the individual.

CHILD-HYGIENE NURSES IN N. J.

FIFTY communities in New Jersey have been so pleased with the work of child-hygiene nurses loaned for demonstration programs by the State bureau of child hygiene that they have kept the nurses after the demonstrations ended and are now paying them from town funds, says the State department of health.—*Children's Bureau, U. S. Dept. Labor.*

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN
WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY

RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.
F. M. PAINTER, ASSISTANT EDITOR

CASE 10221

A colored housewife of sixty entered February 13 complaining of pain in the stomach.

F. H. Good as far as known. Four children had died of unknown causes.

P. H. Her general health had been good. She had had the usual diseases of childhood, scarlatina and typhoid fever. She had had three miscarriages. Several years ago she had "asthma." Micturition, day 7-8, night 3-4.

P. I. In October, four months before admission, she began to have mild cramp-like pain in the epigastrium and around the umbilicus. At the same time her bowels, usually regular, became constipated. A short time before Christmas the pains became so much more severe that she was obliged to keep to her bed. The pains often prevented her sleeping. Food definitely made her worse. A hot water bag applied to the epigastrium often relieved her. She described the pain as a "misery," more severe and localized than cramp-like pain. Frequent and vigorous catharsis became more and more necessary. She had never vomited blood or seen it in the stools. Since Christmas the pain had come apparently every day for varying periods. She had lost all appetite and felt much weakened. She thought she had lost a good deal of weight.

P. E. "Very old." Evidence of loss of weight. Five remaining teeth very poor. Pyorrhea. Apex impulse of the heart in the fifth space just outside the midclavicular line. Systolic murmur at the apex. A_2 and P_2 both accentuated. B. P. 163/100. Abdomen. A palpable epigastric mass which seemed freely movable under the fingers. Pressure in this region caused pain. The skin of the abdomen pitted on pressure. Vaginal and rectal examinations, pupils and reflexes negative.

T. 96° - 99.6° , with one rise to 102.4° February 26. P. 61-120. R. 16-51; except for three days at entrance and three days before death not remarkable. Urine. $\frac{3}{35}$ on the three days recorded, sp. gr. not recorded, cloudy at the single examination, a slight trace of albumin, 5-10 leucocytes per high power field. Blood. Hgb. not recorded, leucocytes 9,300-9,100. Wasser-

mann not recorded. Stool. Guaiac negative. X-ray. Barium enema entered and filled all portions of the colon without delay, but with considerable diffuse pain and discomfort throughout the abdomen. (See illustration.) All portions, especially the transverse and descending colon, presented a definitely abnormal appearance characterized by generalized narrowing and irregularity in outline. Numerous pedunculated pouch-like shadows projected from the lateral margins of the main colonic shadow. This observation was confirmed by a plate following evacuation of the bowel. The cecum was apparently normal in appearance and position. There was marked tenderness to palpation over the whole abdomen. Surgical consultation. "The patient seems almost too feeble for surgical treatment to be advisable. Exploratory laparotomy to confirm diagnosis, with secondary operation later if at all."

The patient seemed to suffer very much with epigastric pain. She was semiconscious much of the time, and went steadily downhill. Subpectorals were given to keep up the fluid intake. Arrangements were begun for sending her home, but it was found the home conditions were not satisfactory, and she was therefore kept in the hospital for the time being. March 1 she became much worse, refused to take fluid, the pulse and respirations rose, the lungs showed edema, and she died.

DISCUSSION

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

I suppose the patient meant that the pain was not specially cramp-like.

MISS PAINTER: The house officer understood that she meant something sharper and more definitely localized than a cramp-like pain.

DR. CABOT: On the face of it this is a history of chronic intestinal obstruction,—pain, constipation, loss of weight, loss of appetite, a pain made worse by food as a high obstruction often is. On the other hand, the pain is too low down. I was going to say, for the stomach, but I do not know that I am right in saying that. It is partly in the epigastrium; I don't think I quite realized how high up it was. It is also stated to be around the umbilicus. It has not the characteristics of ulcer of the stomach; it is not relieved by food, but made worse. And as I read it there again I do not know that there is any way of saying it is not cancer of the stomach. So that I guess about all this history gives me is the prejudice towards a neoplasm, either gastric or intestinal.

NOTES ON THE PHYSICAL EXAMINATION

1. The blood pressure is the most definite and important fact that we have.

2. There is edema of the abdomen, I have no idea yet why.

3. We may say that it is essentially an afebrile case.

4. We are not told whether the urine was a catheter specimen, and therefore have no reason to pay any attention to it.

5. I do not know why a Wassermann was not done. She stayed here for some time and Wassermanns are ordinarily routine here.

6. The X-ray should be the most important factor in the examination.

The fact that they started with a colonic enema means that they thought this was intestinal and not gastric. Not knowing much about the subject, this plate would naturally bring up to my mind the idea of diverticula, multiple, extending over a considerable portion of the large intestine as we know they often do. What I do not know is how far it is pathological. Cer-



Barium enema. All portions of the colon, especially the transverse and descending colon, present a definitely abnormal appearance, characterized by generalized narrowing and irregularity in outline. Numerous pedunculated pouch-like shadows project from the lateral margins of the main colonic shadow. The cecum is apparently normal in appearance and position.

tainly we have seen it in patients who had no intestinal symptoms. Although she has intestinal symptoms I do not know enough to say whether they have any definite connection with the diverticula.

DIFFERENTIAL DIAGNOSIS

I see no acute inflammatory symptoms, no symptoms of a local peritonitis here, which is the only effect of diverticula which has been brought to my attention as disease. I have seen diverticulitis either as the cause of a local peritonitis comparable to an appendicitis or as a finding at necropsy in patients who died of something else. Whether diverticula can be the cause of intestinal obstruction or of chronic symptoms like these I cannot say.

I should have to say she did not die of diverticulitis but of something else, probably cancer of the intestine or tuberculous peritonitis, though of that we have no very definite evidence that I see.

Dr. Young, what can you tell us about diverticula causing other symptoms than acute?

DR. YOUNG: In a case like this we can consider that they might be the basis on which a carcinoma had later developed, because that does happen occasionally.

DR. CABOT: But you would not, from your experience, suppose it could in itself, without carcinoma, cause the symptoms in this case?

DR. YOUNG: Not so severe. I should assume carcinoma would have to be present to cause the symptoms.

DR. CABOT: Apparently Dr. Young's experience does not extend beyond my own in regard to the effects of chronic diverticulitis. Does any one know anything about it, aside from the acute abscess formation which we have all seen?

DR. YOUNG: I have seen two cases which lasted for a number of years and were known to exist. The symptoms in those cases were very much less than anything described here; they did not extend to obstruction or severe pain; it was more distress, with in one case attacks of pain sufficient to keep the patient awake an hour or two at night but not lasting long. One of the two patients did die of cancer developing on the diverticulitis.

DR. CABOT: If chronic irritation has to do with the starting of cancer, as many people believe, diverticulitis would certainly offer chronic irritation.

This patient is of an age and race very prone to arteriosclerosis. Can we in any way relate that fact to her symptoms? Can we suppose that her abdominal symptoms are possibly connected with arteriosclerosis? I do not see that we can. The abdominal symptoms that I have known have all been acute symptoms, infarction or blocking of an artery. This has gone on four months, with no acute symptoms. I do not be-

lieve Dr. Richardson will find that arteriosclerosis had anything to do with her death.

Should we think of toxemia from a distant organ like the kidney? I do not see that we should. Or any chronic poisoning process like pellagra? She presumably lived around here. We have so little pellagra here that I know very little about it. But I do not see how it could give these symptoms.

Suppose we say, then, this is neoplasm; can we say where it is? The outstanding piece of evidence is that they did not even investigate the stomach. I do not know why not. I do not see how they could have been so sure unless there had been some reasons not submitted in this record to make it clear that there was no reason for trying the stomach. On the basis of the evidence here I should have said there should have been a barium X-ray of the stomach. Probably to the wisdom of the physicians in charge there appears no reason to consider it, as I otherwise certainly should. Apparently she did not vomit much and did not have much in the way of gastric symptoms in this hospital. But that is not necessary.

A PHYSICIAN: Does that edema have any relation to obstruction in the liver?

DR. CABOT: I never knew it if it is so. I have seen edema of the abdomen wall in connection with a general systemic block rather than with liver block. I do not lay any stress on that edema of the abdomen. I do not know whether there is anything that we can conclude from that. The natural thing to say is new growth with metastases. Some of those metastases have probably blocked veins, probably not in the liver, I should say, to produce it. But of that I am not sure, because cachectic patients often show these generalized or localized edemas.

The hemoglobin is not recorded; I wonder why?

MISS PAINTER: This was a surgical case.

DR. CABOT: All sorts of things are explained when we know that. I should like to know about the hemoglobin, because if there had been anemia we might have considered other possibilities. I do not now feel so sure as I did about excluding disease in the stomach. I thought it was a medical case.

I think I have nothing more to say. I think it is cancer of the intestine, I do not know where—of the large intestine presumably,—but that is as far as I can go.

Dr. Davis, we are confronting all sorts of puzzles. I wonder if you can remember the picture in life? One of the things we do not understand is why they did not take an X-ray of the stomach. Her symptoms sound just as much gastric as they do intestinal.

DR. LINCOLN DAVIS: I have not heard the history. My recollection would be that she showed signs of obstruction and we were tre-

mendously impressed by the X-ray and thought she had a diverticulitis. She was very sick, very feeble, and at no time did she seem able to stand operation. I thought she had a diverticulitis and possibly a beginning abscess, and we just kept her without daring to operate, feeling that she was developing a partial obstruction and an abscess from a diverticulitis.

DR. CABOT: Did she show clear evidence of obstruction?

DR. DAVIS: There was not very much distension as I remember it. She was quite tender. She was in a rather dazed condition, she did not answer questions and was almost comatose a great part of the time. I felt that she had just about run her span of years and surgery would end it suddenly and was not worth while.

DR. CABOT: Your wisdom was borne out; and the only other thing to inquire is whether there was any more diagnostic light we could get, aside from the wise procedure of doing nothing. As Dr. Davis tells of the case one gets more general, less local impressions. I begin to wonder whether there is anything in the abdomen at all, whether it was Addison's disease. We have no low blood pressure.

MISS PAINTER: The man who took the history in telling of her description of the "misery" put his hand in the region of the splenic flexure.

DR. CABOT: Although there is not much to make us think of Addison's disease, I am turning over in my mind the things it might possibly be.

DR. YOUNG: An abscess would explain the edema of the abdominal wall, but that would not be distinctly movable.

DR. CABOT: And it would have given pain when they put in the barium enema.

DR. YOUNG: One would think so. It says it did cause considerable discomfort and diffuse pain throughout the abdomen.

DR. CABOT: I do not know that we can go any further unless there is something to be added from the ante-mortem point of view.

DR. YOUNG: I should like to say that I do not see the evidence to prove definitely that that is entirely large intestine. I should think the possibility of a carcinoma of the stomach was still there.

DR. CABOT: The mass is epigastric, just where one would expect it with cancer of the stomach, and I must say that since I knew she was not in the medical wards I feel that it would have been a good thing to investigate the stomach.

X-RAY INTERPRETATION

Findings are suggestive of multiple diverticula involving the transverse and descending portions of the colon. No evidence of malignancy.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Multiple diverticulitis of the colon.
Bronchopneumonia.

DR. RICHARD C. CABOT'S DIAGNOSIS

Cancer of (large?) intestine.
Diverticulitis.
Arteriosclerosis.

ANATOMICAL DIAGNOSIS

1. Primary fatal lesions

Adenocarcinoma of the pancreas with metastases in left adrenal, liver, retroperitoneal lymph glands and abdominal wall.

2. Secondary or terminal lesions

Edema of lungs.
Arteriosclerosis.
Soft spleen.

3. Historical landmarks

Diverticula of large intestine.
Slight chronic pleuritis, left.
Fibromyomata of the uterus.

DR. RICHARDSON: These were ordinary diverticula, only perhaps in greater number than usual. They were lined up in the region of the ascending and the transverse colon and scattered along down to the rectum. There was no diverticulitis.

There was a large amount of subcutaneous fat.

In the anterior abdominal wall just above the umbilicus there was a nodule beneath the skin which looked like a nodule of new-growth tissue. Arguing from that, an unusual metastasis isolated just beneath the skin, we think of adrenal tumor.

The pyloric circumference was 5.5 cm. As we looked at the stomach when we opened the cavity everybody said, "Cancer of the pylorus of the stomach." There was no cancer of the stomach. What had happened was that a big mass of glands in that region had impinged on the wall of the stomach and a nodular part of the mass had pushed up the wall of the stomach.

Further exploration revealed an enlarged pancreas, cross section showing infiltration with new-growth tissue. The duct of Wirsung was present and normal for a short distance into the head, where it was lost in the new-growth tissue. The left adrenal was enlarged and largely composed of new-growth tissue. This was closely associated with the pancreas and seemed to extend from one organ to the other. The right adrenal was frankly negative.

DR. CABOT: That carried on the business.

DR. RICHARDSON: The retroperitoneal glands were enlarged in the region of the pancreas and especially about the head of the pancreas; one of these pushed up the stomach wall. The

mesenteric glands generally were negative, but scattered along the mesenteric insertion of the intestine were small nodules of new-growth tissue.

There were a few old pleural adhesions. The heart weighed 290 grams, full sized, the valves and cavities negative. The coronaries, however, showed scattered along the walls more or less fibrous sclerosis. The aorta all told showed some arteriosclerosis, quite well marked in places, not so well in others—on the whole a moderate amount of arteriosclerosis. Otherwise the vascular apparatus was out of the picture.

The liver weighed 1203 grams. The surface was smooth. At one point on the right lateral aspect of the main lobe was a small hemispherical mass of new-growth tissue.

The gall-bladder and bile ducts were negative. The pancreas measured 9 by 6 by 4 cm. and in the region of the head we found a few evidences of what might be pancreatic tissue, but it was mostly composed of new-growth tissue.

In the uterine wall were five small fibromyomata, and hanging off from the posterior wall a pedunculated one four cm. in diameter.

The marrow of the vertebrae showed no evidence of invasion by new-growth tissue.

The question is whether this tumor originated in the pancreas or in the adrenal. Here, on the strength of the finding that there were distinct tubular elements in it, the pancreas was given the right of way.

DR. CABOT: What is the relation of the pancreatic growth to the common bile duct in this case?

DR. RICHARDSON: None at all. The bile ducts were free and negative.

DR. CABOT: Isn't it rather rare to have a cancer of the head that doesn't block the bile duct?

DR. RICHARDSON: Yes, but cancer of the pancreas is found at times in any part of the organ. This pancreas looked as though the head was being invaded last.

DR. CABOT: I take it the epigastric mass that was felt in life was this mass of glands in connection with but not in the stomach.

DR. RICHARDSON: Yes.

CASE 10222

First entry. A ten-year-old girl of Canadian parentage was referred July 13 from the Out-Patient Skin Department.

F. H. and P. H. Not recorded, except that she had long suffered from enuresis.

P. I. Records of the Out-Patient Department show that September 5, nine months earlier, she came with a butterfly-shaped lesion over

the nose and cheeks with a circumscribed very red border and a pink-white plateau center. X-ray of the chest December 5 showed that the apices lighted up well. The costophrenic angles and the mediastinum were clear. There was possibly a little increase in the larger lung markings on the right. The chest field was not otherwise remarkable. The plate showed slight increase in density at the root, especially on the right, and slight clouding about the larger bronchi, but no positive evidence of tuberculous infection. While being followed at the Out-Patient Department her hair began to fall out. Zinc oxid wash* gave no relief. Then CO₂ snow was tried until that was no longer advisable. At a general examination in the Children's Room slight choreic movements were noted. The cervical glands were found to be enlarged. One tooth was carious. It was extracted later. The tonsils were badly inflamed. The posture was poor, the chest flat. The heart showed a soft systolic murmur. Later it was thought that there was some impairment to percussion on the left side a little above the angle of the scapula. February 26 the chest and heart were reported negative and no choreiform movements were seen. The child was however very nervous and irritable.

P. E. Poorly nourished. The skin showed a patchy eruption covering most of the face, but leaving the upper forehead and lower chin comparatively free. There were scattered patchy lesions also over the front and back of the neck and the upper chest. There were large patches over the backs of both hands with more widely scattered lesions over the extensor surfaces of the lower arms. The lesions were bright red, apparently inflammatory, and showed definite atrophy and pin-point dilatation of the capillaries. There was a light scaling and a complete absence of ulceration. The scalp was involved practically throughout, with decided loss of hair. Large areas were completely denuded. The cervical glands were enlarged. Several teeth appeared carious. The rest of the examination was negative.

T. and R. not remarkable. P. 72-107. Urine. Amount not recorded. Sp. gr. 1.020. Cloudy. Other findings negative. Blood. Hgb. 90%, leucocytes 11,800, polynuclears 51%, reds and platelets normal. Wassermann not recorded.

Orders. July 13. Zinc oxid wash*. July 17. Anemia diet. July 20. Dr. Burnett's diet. August 2. Ammoniated mercury ointment† to face, neck and hands at night. Zinc oxid and glycerin wash‡ by day. Blaud's pills t.i.d.

July 16 another six year molar was extracted under ether.

The condition of the skin suggested that sepsis might be an important factor in the etiology of the eruption. The child made very slow im-

provement, but lost her irritability. It was found difficult to make her gain weight. August 21 she was discharged in care of the Social Service Department, to return after a month's rest and building up in the country.

History of interval. The skin condition improved slightly. On her return from the country about October 12 she had pain in the left wrist, followed by swelling. The wrist sometimes felt cold, sometimes hot. Then came pain in both hip joints with some pain in the anterior part of the thigh, especially on motion. About the same time she rather suddenly had great frequency of urination which amounted to incontinence. For an indefinite time she had had transient swelling of the face. With the onset of the frequency and pain this became particularly marked. She drank a great deal of water. She awoke suddenly at night, sometimes with a desire to urinate, sometimes with great thirst. A week before admission she had headaches for two days. She often felt tired. She had occasional nausea when hungry.

Second entry, October 24.

P. E. A poorly developed and nourished child, rather apathetic. Skin as before, with a few new spots over the spinous processes of the lower dorsal vertebrae. A lesion on the arm resembling erythema multiforme showed definite atrophy of the skin. General adenopathy. Right talus scoliiosis. Heart somewhat enlarged downward. Apex impulse in the fifth space. See

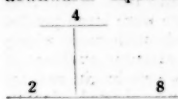


FIGURE 1. Measurements by percussion.

Figure 1. A soft systolic murmur at the apex. Corrigan pulse. Lungs. Right apex dull; bronchovesicular breathing; marked egophony. Abdomen. Questionable spleen. Genitals negative. Extremities. Slight swelling of both wrist joints. Definite valgus, both feet. Pupils normal. Reflexes. Knee-jerks could not be obtained. Biceps jerks normal.

T. 99.2°-104.2°. P. 98-140. R. 20-35. Urine. 3 62-17, sp. gr. 1.006-1.020, alkaline at 3, of 22 examinations, neutral at one, cloudy at 15, a very slight trace to the slightest possible trace of albumin at 21; 10-20 leucocytes per high power field, some in clumps, found in two of three catheter specimens; rare leucocytes at the third, and one red blood corpuscle per high power field. Cultures from two of the catheter specimens showed a growth of colon-like bacilli, once profuse. 5-6 acid-fast organisms found in two. Renal function 55+%. Blood. Hgb. 65%, leucocytes 5,000, polynuclears 56%, apparently very young, 4% vacuolated mononuclears, reds 3,400,000, variation in size, many considerably achromic, platelets varied markedly in

*Etic acid 3 ii, calomel 5 i, phenol 5 ss, lime water to make 18.
†Ammoniated mercury gr. xv, fat 3 i.
‡Zinc oxid 3 ii, calomel 3 i, glycerin 3 ii, phenol 20 minims, water to make 3 viii.

size, apparently in normal numbers. Blood culture negative. One Wassermann (during febrile period) moderately positive, another (when afebrile) negative. Non-protein nitrogen 24.5 mgm. Sputum. Blood streaked at one of two examinations, tubercle bacilli at the other.

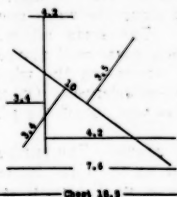


FIGURE 2. Measurements by X-ray.

an artefact. No other abnormal shadows seen. November 14. Findings agreed with previous report.

Orders. October 23. Rest in bed. Aspirin gr. x t.i.d. October 25. Anemia diet. Force fluids. October 27. Acid sodium phosphate and urotropin five grains each t.i.d. November 9. Aspirin gr. x. Tincture of benzoin composite 3 i for throat lesions. Dobell's gargle t.i.d. November 16. Urotropin gr. v t.i.d. p.e. with much water. Triple bromides gr. xv in hot milk; repeat once if necessary. November 21. Cod liver oil 3 i t.i.d. November 24 and 30. Triple bromides gr. xv once p.r.n.

By October 25 the temperature had come down to 99° and the skin lesions had faded markedly. The patient improved so much that it was decided not to give X-ray treatment until the healing processes ceased. October 31 the temperature again rose to 102.6° after being normal for several days. The skin lesions continued to fade, and the patient felt fairly well. By November 11, however, a new diffuse erythematous type of eruption had appeared on the back and arms. The next day the eruption was more diffuse, involving a large part of the back and the roof of the mouth. The spleen was just palpable. By November 16 she was losing weight and strength. The temperature was still high. She had seemed to be semidelirious for two nights. The lungs showed marked dullness, a very few fine moist râles and increased whispered voice at both apices and an occasional musical squeak. The rash on the back had taken on the characteristics of the eruption elsewhere. The lesions in the mouth improved. She vomited, or rather regurgitated at times with very little nausea, and once vomited some bloody material. By December 3 the lesions had largely healed, leaving atrophic areas. The temperature was not so high (100.5°). There was questionable tenderness in the right flank. That

day she was allowed to go home in the hope that she would eat more and be happier.

History of interval. She remained comparatively well until January 7, when she began to be increasingly drowsy and irritable and then to have convulsions. She complained of aching all over. Nothing was known as to vomiting, incontinence or paralysis.

Third entry, January 10.

P. E. Extremely emaciated, resisting examination, and crying out complainingly all the time. Mentally dull. Skin very dry, scaly, with a fine papular condition. Lips crusted and bleeding. Hair very sparse. Left ear, chronic suppurative otitis media. Neck moderately stiff. (Another examiner found no stiffness.) Cervical, axillary and inguinal glands moderately enlarged. *Heart.* Soft systolic murmur. *Lungs.* Very resonant. No râles. *Abdomen.* Tense, with voluntary spasm. Nothing made out. *Extremities and reflexes.* Arthritis of knees and possibly of other joints made examination of Kernig and reflexes difficult. Bed sore over sacrum.

T. 99.5°-104.8° by rectum. P. 118-200. R. 17-54. Amount and sp gr. of urine not recorded. A catheter specimen showed no tubercle bacilli, 10 leucocytes. Another specimen showed 25 red blood cells per high power field. *Blood.* Hgb. 70%-55%, leucocytes 10,200-28,600, polynuclears 79%, reds 2,560,000-2,680,000, slight achromia, platelets large but normal in number. *Blood sugar,* taken simultaneously with lumbar puncture, 127 mgm. *Wassermann* negative. *Lumbar puncture* January 10. 10 c.c. clear fluid. No block. Globulin and albumin positive. 7 cells, all lymphocytes. *Wassermann* anticomplimentary. Gold solution 5532100000. Total protein 57. Sugar 0.064. *January 18.* 15 c.c. clear colorless fluid. No block. Globulin, albumin and *Wassermann* negative. 4 cells. Gold solution normal, later 1111000000. Total protein 22. Sugar .087. *Consultations.* *Neurologist.* "I find no signs of structural central nervous system involvement. The attacks, one of which I saw, are generalized. I believe them to be secondary to her general condition and probably associated with pathology in the left chest (empyema?)." *Ear specialist.* Left ear has the appearance of a tuberculous ear.

Orders. January 10. Individual precautions. Fluids and soft solids ad lib. Warm saline irrigations of left ear 2 i.d. January 14. Aspirin gr. x. Oil of gaultheria to knee p.r.n. January 16. Codeia gr. 1/2 by mouth every three hours for cough or restlessness. Morphine gr. 1/8 s.c. January 17, 18, 20 and 23. Morphine gr. 1/8 not oftener than twice a night.

The child had frequent convulsions. January

18 there was right clonus and Babinski. January 20 the entire left lung showed marked dullness, bronchial breathing, and moist râles. The next day at a chest tap 150 c.c. of cloudy yellowish-white fluid was easily obtained, and was apparently all that could be obtained; sp. gr. 1.022, clotted in 15 minutes, 5000 cells per cu. mm., polynuclears 90%, lymphocytes 9%, large mononuclears 1%; numerous diplococci, rarely intracellular. Next day the temperature was lower but the pulse and respirations higher. The left chest still showed signs of fluid. There was a pneumonic patch behind the spine of the scapula. January 23 the left base was flat to an inch below the angle of the scapula. There was frank bronchial breathing in the upper half of the chest with crepitant râles in the axilla. The left pupil was smaller than the right, the cornea dull, with a gray opaque area in the inner side. January 24 the patient died.

DISCUSSION

BY DR. MAURICE FREMONT-SMITH

NOTES ON THE PHYSICAL EXAMINATION

The lesion over the nose and cheeks was apparently a lupus erythematosus, and the careful examination of the chest made with the idea of discovering whether there might be a tuberculous lesion behind it.

Burnett's diet is an attempt to make the intestinal rate normal. Dr. Burnett believes that the mixture that goes into the ordinary intestinal canal is not used by the organism chiefly for the reason that the intestinal rate is apt to be too rapid, and he has been trying with various mixtures of diet, by cutting out fruit, by cutting out meat and giving sometimes two meals a day instead of three, to decrease the intestinal rate and thereby increase the absorption of the nutritive elements. He has had some very interesting results in cases of psoriasis.

The history of the interval gives the picture of an acute nephritis with possibly some cystitis. We do not have the urine yet.

The urine was examined with interest at this time because there was a question as to the possibility of tuberculosis of the kidney.

DR. CABOT: What interpretation was given to the acid-fast organisms in the urine?

DR. FREMONT-SMITH: The interpretation was that they were tubercle bacilli, as they were found in catheter specimens.

Is the finding of a positive Wassermann a common experience during fever?

DR. CABOT: I think so. I think we do not commonly think much of Wassermanns taken during the febrile period; shouldn't you say so, Dr. Means?

DR. MEANS: Fever and jaundice make them unreliable.

DIFFERENTIAL DIAGNOSIS

DR. FREMONT-SMITH: It seems logical to believe that at the time of the third entry, when the patient was crying out, mentally dull, and having convulsions, there must have been central nervous system involvement, probably tuberculosis. We believed at that time that the child had miliary tuberculosis, and to back this up were the facts that she had had skin lesions, probably tuberculous in nature, and that tubercle bacilli had been demonstrated in the urine and once in the sputum. Although the lungs had been found negative both clinically and by X-ray it is frequently the case that one may have a tuberculous meningitis and no other evidence of tuberculosis can be found in the child until necropsy. We were astonished at the first lumbar puncture findings,—only seven cells, lymphocytes, an anticomplimentary Wassermann, and a paretic gold curve. I do not know the explanation for that gold curve now. It may have been simply a laboratory mistake, because the next lumbar puncture gave a normal fluid. We considered also the possibility of an abscess of the brain secondary to the otitis media. Again we should have expected the fluid to show some abnormality, a few polymorphonuclear leucocytes if nothing further. The ear consultants felt however that the ear was secondary to the patient's general condition, and probably tuberculous. The lungs had been gone over very carefully with tuberculosis in mind at the time of her third entry and it is interesting how rapidly the dullness at the left base appeared. Within three days there was dullness up beyond the angle of the scapula. There was also at the time that this dullness was discovered, frank bronchial breathing above it, and we believe there was fluid present and almost certainly bronchopneumonia. Our diagnosis was empyema, bronchopneumonia, probably tuberculous, and miliary tuberculosis, tuberculous meningitis.

DR. CABOT: What about the eye, the opacity of the cornea, and the gray opaque area in the inner side?

DR. SMITH: I do not know how to explain that.

DR. YOUNG: In the face of tuberculosis elsewhere why not consider the kidneys a tubercle bacillus filter, not necessarily diseased themselves? This has been proved to be the case in a number of studies.

DR. FREMONT-SMITH: Much as we might find them in the stool in pulmonary tuberculosis.

DR. W. D. SMITH: Could they have filtered through unless a patient had had a generalized tuberculosis? Could they have filtered through with tuberculosis in the apex of the lung only?

DR. YOUNG: It has been proved with tuberculosis in the lung, without any miliary tubercu-

losis and without tuberculosis in the kidney itself.

DR. W. D. SMITH: I should like to ask if the skin people would make a diagnosis of tuberculosis.

AN INTERNE: They called it disseminated lupus erythematosus, and there was a note that certain investigators had found this type particularly associated with glandular tuberculosis.

MISS PAINTER: At the second entry they made a diagnosis of subacute miliary tuberculosis, besides the lupus.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Pulmonary tuberculosis.
Empyema.

DR. MAURICE FREMONT-SMITH'S DIAGNOSIS

Empyema.
Bronchopneumonia (tuberculous?)
Miliary tuberculosis.
Tuberculous meningitis.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

Septicemia, pneumococcus.
Lobar pneumonia, upper lobe of left lung.

2. *Secondary or terminal lesions*

Fibrinopurulent pleuritis, left.
Fatty metamorphosis of liver.

3. *Historical landmarks*

Accessory pancreas of the jejunum.

DR. RICHARDSON: Dr. Ayer could not come. He says that he did not think there was any evidence of tuberculosis in the spinal fluids.

We were not permitted to examine the head.

In the peritoneal cavity there were a few cubic centimeters of thin pale fluid. The peritoneum was negative, no evidence of tuberculosis. There was a small mass of pancreas resting along the wall of the jejunum; this occurs once in a while. Such masses are found at times along the stomach, the duodenum, or they may even rest along the lower end of the ileum.

There was about 200 c.c. of cloudy fluid and fibrin in the left pleural cavity. The trachea and bronchi contained a small amount of reddish fluid.

The apex of the right lung was negative, there were no areas of consolidation, the tissue was spongy, pale pinkish red,—no evidence of tuberculosis. The upper half of the upper lobe of the left lung was solid, resistant, and the pleura was coated with fibrinous exudate,—a lobar pneumonia. No tuberculosis was made out in this lung, and the only thing in the apex was the pneumonia.

The pericardium contained about 100 c.c. of thin pale fluid; that is a little more than usual.

The heart weighed 171 grams; for her age that is rather large. The valves and the coronaries were frankly negative.

Culture from the heart blood showed a profuse growth of the pneumococcus.

DR. CABOT: That reads to me just as if because a person happened to be run over by an automobile and knocked down when he also had a chronic disease you gave the cause of death as a broken leg. This patient has had a disease which produced a profound anemia, and we certainly have not got the disease in that anatomical diagnosis. There is probably nothing we can do about it. But I think we ought to make it perfectly clear that we have not diagnosed that disease, except in the same sense that we diagnose the automobile accident. There may be something in the head. Even so I find it very hard to think how anything in the skull could have accounted for this anemia. What do you think she had, Dr. Means?

DR. MEANS: I think she probably had tuberculosis.

DR. CABOT: She evidently did not have it in the lungs. Tuberculosis in the skull alone could not account for this picture. Of course we have to make something out of those tubercle bacilli in the sputum and urine. They had some doubts apparently about the urine, but none about the sputum. I was going to say this was a case when the clinicians had it over the X-ray men, but I am not so sure now. I rather think the X-ray men had it over the clinicians. Was the case ever on the medical service?

DR. FREMONT-SMITH: Yes, the last time.

DR. MEANS: What kind of skin tuberculosis did the skin people think this was?

AN INTERNE: Disseminated lupus erythematosus.

DR. MEANS: I thought lupus erythematosus was not a tuberculous disease at all.

AN INTERNE: It is thought not, but the disseminated form is. It is just a name for a form of the disease which is often found associated with glandular tuberculosis.

DR. CABOT: We cannot say here *causa mortis ignota*, but I should say *causa morbi ignota*.

CASE 10223

First entry. An American demonstrator of fifty-eight entered December 21 complaining of increasing weakness.

F. H. Her husband died in a sanatorium of "a complication of diseases." (He probably had general paresis.)

P. H. She had scarlet fever at eight, typhoid at thirteen, pneumonia at twenty-seven, influenza at various times, a touch last year. She had had tonsillitis. A meibomian cyst was op-

erated upon several years ago. For a year she had occasionally had numbness in the right leg. She passed the menopause eleven years ago. She occasionally urinated at night.

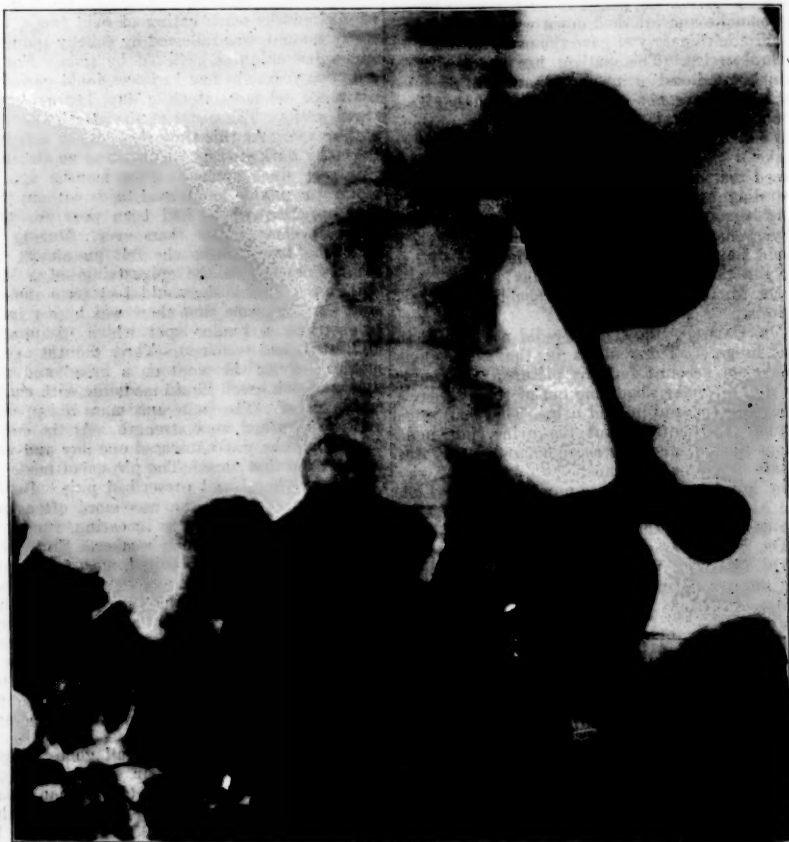
P. I. Six years ago she had a "nervous breakdown." Associated with this was a period of six months when eating of acid foods, especially tomato, was followed by colicky pain lasting a few minutes, relieved by soda. For the past two years she had had occasional periods of diarrhea, 3-4 loose stools a day, lasting two or three weeks. The worst of the attacks occurred a year ago. At this time she noticed a few abnormally dark stools. She had had no attacks of this sort since spring. Five months ago she again was unable to eat acid foods without pain. Her appetite, which had been poor for three years, became worse than ever. During the following two months she felt an almost constant sensation in the epigastrium of a lump "like gas" which she could feel from the outside. At the same time there was higher in the epigastrium a tender spot which disappeared and lately had returned. Three months ago by medical advice she went on a bread and milk diet and took green liquid medicine with considerable relief. The pain and mass disappeared and she regained some strength. At the end of this month she was nauseated one day and vomited for the first time. The physician made the diet more liberal and prescribed pills. During the following month she was more often nauseated, had more difficulty in eating, vomited a few times, and felt much weaker. Since then her diet had been very limited, most foods causing immediate gagging and nausea, and if persisted in, vomiting. She had grown weaker during the past two years, though there were periods when she was able to do her normal work, and others when with no pain she had to go to bed from pure weakness. During the year her weight had dropped from 130 pounds to 90. She had lost sixteen pounds in the past month.

P. E. Emaciated. Teeth all gone. Slight right dorsal and left lumbar scoliosis. *Heart* normal as far as recorded. (Percussion measurements not given.) Artery walls palpable and tortuous. B. P. 130/95. *Abdomen.* In midepigastrium was a hard palpable mass which could not be easily defined but appeared to be about the size of a lemon, somewhat tender, not moving with respiration, and not continuous with the liver edge, which was palpable 2 cm. below the costal margin, even, and not abnormally hard. *Pelvic examination.* Body of uterus could not be felt. Cervix pointed upward and uterus was apparently in third degree retroversion. *Rectal examination* and rectal shelf negative. *Pupils* irregular, reactions sluggish. *Reflexes* normal.

T. 97°-99.8°. P. 70-95. R. normal. *Urine.* 3 17-16 on the two days recorded, cloudy, neu-

tral, sp. gr. 1.013, many leucocytes free and in clumps at the single examination. Blood. Hgb. 80%, leucocytes 9,400, reds 4,800,000. Wassermann strongly positive. X-ray in the Out-Patient Department December 14. Stomach

terior margin was somewhat irregular. Just below this narrow space was a small pouch-like portion of stomach separated from the lower third by a short constriction. Stomach below this filled well, appeared flexible, distended with



Shows a deep filling defect just below the fundus, apparently mostly on the posterior side, while the fundus is connected with the portion of the gastric shadow below by a very narrow lumen several centimeters long. The posterior margin is somewhat irregular. Just below this narrow space is a small pouch-like portion of stomach separated from the lower third by a short constriction. Stomach below this filled well, appeared flexible, distended with barium normally, but barium passed out of the stomach rapidly. The pylorus appeared wide. First portion of duodenum dilated to a size almost equal to the size of the gastric antrum.

empty in normal time. Appeared normal in position and when filled with barium mixture presented a very unusual outline. See illustration. There was a deep filling defect just below the fundus, apparently mostly on the posterior side, while the fundus was connected with the portion of the gastric shadow below by a very narrow lumen several centimeters long. The pos-

terior margin was somewhat irregular. Just below this narrow space was a small pouch-like portion of stomach separated from the lower third by a short constriction. Stomach below this filled well, appeared flexible, distended with barium normally, but barium passed out of the stomach rapidly. The pylorus appeared wide. First portion of duodenum dilated to a size almost equal to the size of the gastric antrum. Remainder of tract not remarkable. *South Medical consultation* December 22. "Advise operation. Do not see how medical treatment can relieve more than very slightly if at all, depend-

ing on how much is active and how much is now scar."

The patient was put upon a high caloric diet and ate more than she usually did. She vomited once. December 26 she was sent to the South Medical Department and was given 0.3 grams of neodiarsenol. She was also given mercury and KI daily*. The South Medical consultant now advised that as the patient was gaining, medical treatment should be continued. She retained food well and without discomfort during the next four days. The stomach capacity was still limited to six or eight ounces. By January 3 she had gained half a pound.

January 9 the fasting contents of the stomach were 10 c.c. of colorless mucoid fluid. A test meal gave 48 c.c. of colorless mucoid fluid containing several mushy pieces of the bread eaten. Nothing abnormal was seen grossly. Guaiac was negative. There was no free HCl in either fasting or test meal contents; total acid 20 in fasting and 35 in test meal. A stained specimen showed a few leucocytes and epithelial cells and some cellular detritus; no blood. The appearance of the stomach by X-ray was unchanged.

She continued to improve and to gain weight rapidly. She was therefore discharged January 17 to the Out-Patient Department for further treatment.

History of interval. The patient had no pain or discomfort during her month of absence from the hospital. She continued to take faithfully the five meal diet as prescribed. Every three or four days she vomited all of her food for two or three meals without nausea or discomfort. She constantly lost weight, but not strength.

Second entry. February 20.

P. E. The epigastric mass now moved with respiration. It gave a sensation of resistance, of thickened tissue which could be moulded, slightly irregular in outline.

Before operation *chart* not remarkable, *urine* and *blood* not recorded. *X-ray.* Gastric findings the same as at the first observation. The contraction appeared if anything slightly more pronounced.

February 23 operation was done. The patient failed to rally, and February 25 died.

DISCUSSION

BY DR. EDWARD L. YOUNG, JR.

This is a story that is so definitely progressive, and gives such evidence of organic trouble that we have to put it under one of three diagnoses to start with, until we get other proof at any rate: ulcer, cancer, or, in view of a case we

*Mercury bismoid gr. ii, KI 3 v, syrup of ginger 3 ii, water to make 3 iv; 3 i l.i.d.

discussed only recently, syphilis of the stomach. The last diagnosis, perhaps, because we have discussed it recently, is the one that seems to impress itself at once rather strongly, because a story which is characteristic neither of ulcer nor of cancer, with progressive trouble over a longer period than we generally see in cancer and shorter than the usual ulcer story, is always suspicious of syphilis. Then too if her husband died of general paresis, that brings in the question of specific infection in the patient herself. Certainly at fifty-two, for six years, this is not the story that we ordinarily associate with peptic ulcer, and it seems to me we have to believe that it is more likely to be cancer or syphilis, because both of those have symptoms which can be almost anything or nothing as long as they are pointing to the gastro-intestinal tract. I think the individual symptoms that she speaks of here cannot be used as arguments for one or the other very definitely.

The finding of a mass is again an observation of which I always think perhaps it may be so, perhaps it may be what the observer wanted to feel. Because it is very hard to tell unless there is a very marked irregularity of the liver edge, whether it is smooth and normal or not.

Dr. Merrill, will you talk about the X-rays?

DR. MERRILL: When the barium meal was given a gastric picture was seen by which it could be easily understood how any moderate amount of food would cause the patient distress, and the reason why she could not eat very much. There was no delay at the end of six hours. The stomach presented an unusual, contracted appearance, especially in the median portion, where it was reduced to a very narrow lumen connecting a superior and an inferior pouch, and from the posterior side of this lumen projected a third much smaller pouch connected with the inferior pocket by a short neck, not so narrow as the main constriction. This never expanded any more than we see it in the plate during the taking of the meal or while the meal was in the stomach. It seemed inconceivable that anything but liquids could get through it. A contraction like that in the gastric shadow means one of two things to us: either an actual contraction of the gastric lumen reducing its size to this capacity, or an invasion of the gastric cavity by a mass growing from the wall. They cannot always be differentiated. An idea could be had by palpation of the stomach and the suggestion of a possible mass. As far as I know no such mass was felt. So to us this presents a very wide contracting lesion about the middle of the stomach shadow, reducing its size very much, and much reducing its capacity, so that when the patient tries to eat it fills up and gives symptoms which in a certain classification we have been studying have been quite characteristic,—that is, symptoms of over-feeding with a very small amount of food, followed by gastric

discomfort, sometimes acute, but more often an over-filled sensation which persists until the stomach is emptied either spontaneously or by induced vomiting, or by the slow passage of the food out of the stomach.

The lower portion of the stomach is normal in appearance and presents a rather characteristic point in cases similar to this, which are very frequently accompanied by an appearance of incompetency at the pylorus, through which the barium passes so rapidly that it dilates the duodenum to a proportion which might at first be mistaken for the pyloric end of the stomach.

To go outside the X-ray side of this question a little, we should like to have a little more characteristic story. We should like to believe that these suggestions of increased gastric pain by acids and relief by soda were not volunteered and but suggested by the examination; because that is not characteristic of the thing we have in mind.

DR. CABOT: I did not hear if you said anything about peristalsis.

DR. MERRILL: Peristalsis was absent over the contracted portion. As we see the stomach in the screen, peristalsis begins about two-thirds up on the shadow and progressively follows downward on both sides. There was normal peristalsis in the lower, none in the upper portion where the contraction is, and the second shorter constriction which might be mistaken on the plate for a peristaltic wave is not a peristaltic wave but a constant deformity.

DR. CABOT: Did you feel any tumor?

DR. MERRILL: No. And in speaking of the differentiating of gastric lesions of this kind, the presence or absence of tumor is an important point.

DR. YOUNG: You spoke of the presence or absence of pain from acid food. As I gather, the diagnosis of syphilis of the stomach is based on the evidence of atypical carcinoma plus the X-ray plus a positive Wassermann. But I gather from what you say now that you think that there are one or more symptoms that do point to syphilis as such.

DR. MERRILL: From what I have been able to learn from reading considerable literature the general picture which these cases present is somewhat suggestive. It is usually too long a story for cancer, it is not typical ulcer, it lacks the characteristic ulcer periodicity. It may be an irregular beginning for quite a period of time, but gradually becoming more constant. It is characterized by the over-filled or uncomfortable feeling immediately after eating, relieved by vomiting, and it is not characteristic of it to be relieved by soda. Any food, whether acid or not, causes distress. Marked loss of weight is also quoted by practically all the writers on the subject, and fifty or sixty pounds is nothing uncommon. But they all say the great loss of weight is not accompanied by so

much cachexia or general weakness as we should expect to find in a malignant case of the same duration.

DR. YOUNG: Then there is no definite symptom pointing toward it as such.

Of course there are two problems if there is syphilis of the stomach here. One is to treat the syphilis and the other to repair the scar left by the syphilis. Did you see her, Dr. Cheever? Will you say something about the syphilitic side of the question?

DR. AUSTIN W. CHEEVER: I did not find any other proof except the positive Wassermann and the history of probable paresis in the husband; along with the atypical evidence of ulcer and cancer it seemed to me that syphilis of the stomach was the best probability, and that was why I gave the advice just quoted. It did not seem to me that any treatment for syphilis could help the pathology in the stomach, although I saw her two or three times in the Out-Patient afterward and she was gaining a little in sense of well-being and strength.

DR. CABOT: Wouldn't you lay some stress on the history, which may be incorrect, of a pain and mass having disappeared under treatment?

DR. YOUNG: You mean under antisiphilitic treatment?

DR. CABOT: I do not know what the treatment was. But we do not expect such disappearance in either ulcer or cancer.

DR. YOUNG: No; if true, I think that is important. On the other hand it says here in the examination, "hard palpable mass which could not be easily defined." Dr. Merrill says there was none.

DR. CHEEVER: If there really were a mass of a gummatous nature it seems to me that treatment would have relieved her more than it did.

DR. YOUNG: The presence or absence of this mass is very important from the point of view of syphilitic treatment.

DR. MERRILL: In regard to the regaining of strength, these cases which might be mistaken for malignant cases have periods in which they apparently regain strength, perhaps on special diet or under special treatment or rest, but they have an up-and-down course for a while.

DR. YOUNG: If that is due to scar left behind by syphilis I do not see how any anti-syphilitic treatment is going to help.

DR. CHEEVER: It certainly could not.

DR. YOUNG: So that the treatment is the treatment of the mechanical condition. If she was gaining weight and improving it seems justifiable to have her gain as much as possible before doing what seems to me inevitable, that is, treatment of the condition by operation.

The history of the interval seems a little strange in view of the fact that she was gaining rapidly when leaving the month before. Did you see her at the second entry, Dr. Merrill?

DR. MERRILL: It must have been about that time I did the X-ray examination.

DR. CABOT: This is the time, it seems to me, when it would have been well to have a little more teamwork—if we could have got together the people who felt the mass and the people who did not, and so have settled it.

DR. YOUNG: "The contraction appeared if anything slightly more pronounced." Of course that is what we should expect if that was a scar contraction, no matter what caused it.

DR. MERRILL: I should like to say in regard to the surgical aspect of a case of that kind, almost everybody seems to agree that these contractions do not disappear under treatment. I know of three cases, two of which were operated nine or ten and one eleven years ago; and although no positive diagnosis was made at that time, one was regarded as probably malignant and inoperable, but as he was a positive syphilitic he was put under treatment on the chance. Both had definite contractions, one in the middle of the stomach, the other at the pyloric end. Neither the surgeon nor the clinician thought they were ulcers. Unfortunately neither of them had a microscopical examination. One had a couple of glands removed which were said to be non-malignant. I have examined both those men at eleven and nine years after operation; they both feel well, one perfectly well, eats everything and has no complaints. The other is well with the exception that he says his stomach won't hold enough; he has to eat five or six times a day. They both have a persisting contraction of the stomach, one more than the other.

DR. YOUNG: Not so marked as this?

DR. MERRILL: No.

DR. CABOT: Did the X-ray Department say it was syphilis in these cases?

DR. MERRILL: This case was one of the last cases of a series of possible syphilitics we examined, and knowing quite a good deal about her story we said it was the probable condition. But we could not say so from the picture alone.

DR. YOUNG: It seems to me that is the probable diagnosis, but we do not know enough about it to be very positive. As we see the picture it looks as though a sleeve resection of the stomach ought to cure her, with nothing more.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Syphilis of the stomach.

PRE-OPERATIVE DIAGNOSIS

Syphilis of stomach.

OPERATION

Gas and ether. Midline incision below the ensiform. The stomach was found to be markedly contracted, especially over an area of about 6 cm. on the stomach side of the pylorus. This area was spongy to the touch. The right lobe of the liver was enlarged and nodular. It was possible to deliver the stomach with its contrac-

tion in the middle. The area containing the stricture was delivered in the wound. The area from 1½ inches above the pylorus to above the middle of the stomach felt like a spongy tumor half the size of a banana. It was possible to cut across the stricture below the cicatricial tissue and then to mobilize the upper fragment and excise almost all the area involved. On the upper posterior wall it was necessary to cut through the cicatricial tissue. An end-to-end suture was then done with two rows of No. 1 continuous catgut. A sleeve resection. The liver was found to be extensively involved in the cicatricial process. The spleen lay high and near the stomach wall during the resection, and was so injured that a venous hemorrhage persisted. After the removal of the gauze pack which had been placed during the operation the bleeding could not be controlled, so a small spleen was excised as the safest method of controlling the hemorrhage. This was accomplished quickly and without difficulty. The wound was closed without drainage. There were many enlarged glands in the region of the operation.

PATHOLOGICAL REPORT

A cuff-shaped area of stomach measuring 6 cm. along the greater curvature. The mucous surface is superficially ulcerated, with islands of intact mucosa in its midst. The walls are thickened.

Microscopic examination shows superficial erosion of the mucous membrane and infiltration with wandering cells. There is marked thickening of the submucosa, which is about three times the thickness of the muscular coats. It is composed of a loose connective tissue richly supplied with large and tortuous blood vessels with occasional focal collections of wandering cells. There is no extensive proliferation of the endothelium. The muscular coats show fibrosis. There is no positive evidence of syphilis. The microscopic appearances resemble those lesions of the stomach found in patients with active syphilis.

Chronic gastritis.

H. F. HARTWELL.

FURTHER DISCUSSION

DR. YOUNG: Should there be enlarged glands with syphilis?

DR. CHEEVER: There should not be unless they had remained enlarged from early syphilis. I do not think that is likely.

DR. YOUNG: They had to do a good deal of suturing through cicatricial tissue. They had to do a fairly extensive operation. The combination of shock with perhaps a leaking through the suture line and peritonitis would be enough to account for the death. I think we shall have to let Dr. Richardson tell us.

DR. MERRILL: Which do you think was the mass felt on examination—the tumor half the

size of a banana, or the hard edge of the liver? She was a very thin woman.

Dr. YOUNG: They spoke of feeling the liver edge at the first examination two cm. below in addition to the tumor.

Dr. MERRILL: At the operation this mass was not hard.

Dr. YOUNG: It was a spongy tumor, not the sort of thing one could feel through an abdominal wall. I think that mass was something somebody wanted to feel.

Dr. CHEEVER: You asked if those glands would go with syphilis. Unless there were also glands that were palpable in the usual places under the skin, I do not think so. Certainly not with a late syphilis *per se*.

Dr. YOUNG: I think they are consistent with a low-grade sepsis.

INTERPRETATION OF X-RAY DECEMBER FOURTEENTH

From appearances alone the nature of the contracting process can not be determined. May be syphilitic involvement of gastric wall or possibly result of an old ulcer.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Syphilis of the stomach.

Operations, sleeve resection of stomach, splenectomy.

Cardiac failure.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Syphilis of the stomach.

General peritonitis?

ANATOMICAL DIAGNOSIS

1. Primary fatal lesion

(Syphilis of the stomach.)

2. Secondary or terminal lesions

Operation wounds, sleeve resection of stomach, splenectomy.

Hemorrhage into peritoneal cavity.

Syphilitic cirrhosis of the liver.

Edema of the lungs.

Slight arteriosclerosis.

Wet brain.

3. Historical landmarks

Chronic pleuritis.

Slightly defective closure of the foramen ovale.

Fibroma of the uterus.

Dr. RICHARDSON: The examination of the head showed a wet pia, with negative vessels of Willis and middle ears. The brain weighed 1156 grams, rather small, the tissues wet, otherwise negative. We removed a piece of the spinal cord by the anterior route. This was negative both macroscopically and microscopically.

On opening the abdominal cavity we found at least 1000 c.c. of opaque bloody fluid,—hemorrhage into the peritoneal cavity. The stomach remaining measured from the pylorus to the esophageal opening seven cm., and around the wall ten cm. At a point 3 cm. above the pylorus there was a row of sutures around the stomach. The portion of the stomach below the sutures was negative. The pylorus was 6 cm. in circumference. Just above the row of sutures there was an area of thinning of the stomach wall, more or less necrotic, and at one or two places very small perforations. Above this the mucosa was negative. Microscopic examination of these portions of the stomach showed nothing except what we saw grossly.

I found no definite increase in the size of the glands. There were a few old pleural adhesions. The lungs aside from considerable edema were negative.

The heart weighed 212 grams, rather small, although I call attention again to the fact that as cases come here the hearts in women do not weigh so much as the books record. Hearts that run from 200 to 250 grams are common enough. There was a slight amount of fibrous sclerosis in the ascending thoracic—very slight, but still to settle the question we took a piece, and it was negative,—no luetic aortitis.

The liver weighed 962 grams, small. The organ presented over its various surfaces the areas and streaks and crevices of depression and fibrosis which are associated with syphilitic hepatitis. In this case they extended into the liver substance for some distance. Microscopical examination confirmed that there was syphilitic cirrhosis in this liver.

The spleen was wanting. The kidneys weighed 181 grams. That is small, but the tissues were of good consistence with normal markings and a cortex of five mm.

Dr. CABOT: You have heard the description as read of the specimen excised. Is there anything in your findings inconsistent with what would be found if there had been a syphilitic process which had gone on to scar formation?

Dr. RICHARDSON: No. It has been claimed that the spirochetes have been found in the stomach lesions. If that is true, to my mind it would clinch the thing just as it did with aortitis.

Dr. MERRILL: I have found in the literature only one case of acquired syphilis of the stomach confirmed by the finding of the spirochetes. Dr. Vincent says it is the only one that has been found.

Dr. W. D. SMITH: It would have been interesting if during the early part of the stomach symptoms the diagnosis could have been made and treatment for syphilis given. Of course the stomach was not like that when the symptoms started. She probably had ulcerative gummata, and that may have accounted for her objection to acid and irritating food.

CURRENT LITERATURE

ABSTRACTS

GERARDO M. BALBONI
WILLIAM B. BREED
LAURENCE D. CHAPIN
AUSTIN W. CHEEVER
RANDALL CLIFFORD
ERNEST M. DALAND
HORACE GRAY
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HENRY R. VIETS

BRYANT D. WETHELLE

PAPILLOMATA INVOLVING THE FEMALE URETHRA

KREUTZMANN, H. A. R. (*Surgery, Gynecology & Obstetrics*, April, 1924). This author states that papillomata are quite common in the female urethra. They occur most often in the posterior portion, just external to the vesical sphincter. They are the result of chronic inflammation of some part of the urinary tract. In themselves they cause few symptoms. Their importance lies in the fact that, when present, they are indicative of long standing pathology somewhere in the urinary system. [E. H. R.]

THE VALUE OF BRONCHOSCOPY AFTER TRACHEOTOMY

CLEEF, L. H. (*Surgery, Gynecology & Obstetrics*, April, 1924). This author presents a case in which seventeen bronchoscopies were necessary to save life. He shows photographs of numerous small obstructing crusts removed from the bronchi, and draws the following conclusions from his rather extensive observations on this type of case:

1. Tracheotomy is a means toward an end. It does not insure a permanently free airway.
2. Close observation and watchful after-care of every tracheotomized patient is imperative.
3. An increased respiratory rate with signs of dyspnoea rarely mean pulmonary complications and almost never lobar pneumonia.
4. The most common cause of post-tracheotomic dyspnoea is mechanical obstruction to the airway. This may be due to secretion, to an improperly fitting cannula or a cannula which has not been properly placed.
5. Any case of dyspnoea not relieved by changing a properly fitted, clean cannula should have a bronchoscopy done to see why the air is not getting down into the lungs.
6. Obstructive dyspnoea is impossible when the tracheotomy tube and the tracheobronchial tree are patulous.
7. A bronchoscope and a mechanical aspirator should be at the bedside of every tracheotomy case. These may be the means of saving life in any case.
8. In the cases of total absence of the cough reflex often seen in children after tracheotomy, the patients will all die unless the secretions are removed mechanically. [E. H. R.]

THE IMPORTANCE OF THE PERIOSTEUM AND THE ENDOSTEUM IN THE REPAIR OF TRANSPLANTED BONE

HAAS, S. L. (*Archives of Surgery*, March, 1924).

This author, largely from experimental work on the lower animals, draws the following conclusions:

1. A fracture in a transplanted bone from which the periosteum has been removed may unite, either when transplanted to the muscles of the back or reimplanted in its normal position.

2. A fracture in a transplanted bone from which the endosteum has been curetted may unite, either when transplanted to the muscles of the back or reimplanted in its normal position.

3. A fracture in a transplanted bone from which both periosteum and endosteum have been removed did not unite, either when transplanted to the muscles of the back or when reimplanted in its normal position.

4. The chief source of osteogenic cells, for the repair of a fracture in a transplanted bone, is from the osteoblasts of the periosteum and the endosteum. The presence of either is sufficient for union. The periosteum plays a relatively more active part than the endosteum.

5. The explanation of those cases of nonunion not due to mechanical tissue interference or gross malpositions must be sought for in the factors that inhibit osteogenesis simultaneously in both the periosteum and the endosteum.

6. In order to attain a maximum of reparative power for any bone lesion, it is deemed essential to preserve the integrity of both the periosteum and the endosteum. [E. H. R.]

THE ETIOLOGY AND TREATMENT OF NON-TUBERCULOUS PULMONARY ABSCESS

WHITTEMORE, W. (*Surgery, Gynecology & Obstetrics*, April, 1924). Whittemore presents a short article on this extensively written about subject, and says in conclusion that:

1. "It is important for the surgeon performing operations on the upper respiratory tract under general anaesthesia to bear in mind the danger of lung infection and arrange his technique so as to avoid this complication.
2. From 10 to 30 per cent of the cases may be expected to be cured by expectant treatment.
3. Artificial pneumothorax may cure a very small number of cases. It should be used only in those cases in which the lung and costal pleura are not adherent. It is an excellent means of determining whether or not adhesions are present.
4. Bronchoscopy may cure a very limited number of cases if treatment is established early.
5. Surgery offers an excellent chance for cure in those cases in which other methods of treatment have failed or are unsuitable." [E. H. R.]

THE WASSERMANN REACTION IN DIFFERENT SOCIAL CLASSES

BELDING, DAVID L. AND HUNTER, ISABELLE L. (*Amer. Jour. of Syph.*, vol. 8, no. 1, January, 1924). find that the per cent. of positives in Wassermann surveys in pregnant women varies from 3.05 to 31.11. This variation is due in part to differences in the social position, race, and nationality of the patients and in part to certain technical factors in performing the test. The results obtained by 24 investigators in routine Wassermann tests in 19,739 pregnant women, both negro and white, give an average of 9.8 per cent. positive. Excluding the greater part of the negroes, 7.5 per cent. were positive. In our series of 5198 cases, which included 3.5 per cent. negroes, 9.2 per cent. were positive. Investigators with a larger number of cases as a rule report lower averages; eleven with more than 500 cases, found 9.6 per cent. positive, and thirteen with less than 500, 11.9 per cent. Serum positive syphilis is more prevalent in the lower class residential districts of Boston. Charity patients show a higher per cent. of positives than patients who pay their own hospital bills. In general the prevalence of syphilis increases as the social scale of occupations decreases, except in the ~~poor~~ ^{poor} ~~middle class~~ ^{middle class} ~~which in their series gives the highest~~ ^{which in their series gives the highest}

per cent. of positives. Owing to the greater proportion of unskilled labor, outdoor occupations show a higher per cent. of positives than indoor. Syphilis seems more prevalent in some occupations, but small numbers and local conditions render any conclusions unwarranted. [A. W. C.]

SOME NEARLY FORGOTTEN PRINCIPLES IN THE MODERN RECOGNITION AND TREATMENT OF SYPHILIS AND THE SYPHILITIC

GRAVES, W. W. (*Amer. Jour. of Syph.*, vol. 8, no. 1, January, 1924), strongly emphasizes the too often forgotten need of most careful examination of patients with syphilis and evaluation of the patient's general constitution and powers of resistance. He deplors the much too frequent acceptance of negative laboratory findings as proof of the absence or cure of syphilis. He strongly condemns the indiscriminate use of intensive treatment, lasting only a few months, in late syphilis, especially where the plan should be to help the patient overcome his infection by long-continued care both by anti-specific medication, cautiously and sensibly used, and by general care such as is recognized as necessary in all other infectious processes, rather than to attempt the impossible of sterilizing the patient by very intensive treatment at times when such sterilization cannot be accomplished. This sort of treatment not only fails to effect the desired end, but it is often dangerous to the patient. He hopes that more and more the diagnosis of syphilis shall be based on both clinical and laboratory findings, and that the treatment of syphilis and the syphilitic shall be based more on knowledge of the whole individual and less often solely on laboratory signs, and that all may come to think more about the syphilitic, the consort and the progeny, and less about spirochetes and sterilization. [A. W. C.]

TREATMENT OF EARLY SYPHILIS

IRVINE, G. H. (*Arch. Derm. and Syph.*, vol. 9, no. 2, February, 1924), urges that every patient should be completely examined and his condition positively diagnosed before treatment is undertaken. Abortive treatment should be undertaken only in carefully selected cases, and even then two or three courses of both mercury and arsphenamin should be given. Methods of treatment are now pretty well settled as to minimum requirements, but this treatment should extend in all cases over a two or three year period, regardless of favorable serologic findings, and should include the arsenicals and either injections or inunctions of mercury. Our problem is to convince the patient of the need of this extended treatment, and to assume some responsibility in seeing that it is given. There should be a period of at least two or three years of observation after treatment, and occasional late relapses indicate that this may well be even further extended. [A. W. C.]

HISTOLOGIC CHANGES PRODUCED EXPERIMENTALLY IN RABBITS BY THE IODIDS OF POTASSIUM AND SODIUM

KOLMER, J. A., AND LUCKE, B. (*Arch. Derm. and Syph.*, vol. 9, no. 2, February, 1924), have previously reported on histologic changes produced in experimental animals by the use of the arsenicals, mercury, and bismuth. Their studies on the iodids are reported in this paper in great detail, and are summarized as follows: Administration to rabbits by stomach tube of potassium and sodium iodid in repeated large doses equivalent to approximately as much as 15 gm. per 60 kilograms of body weight, and repeated intravenous injections in amounts approximately equivalent to as much as 1 gm. per

60 kilograms, as well as single intravenous injections in amounts equivalent to approximately 30 gm. per 60 kilograms, did not cause tissue changes in the brain, heart, and suprarenals. The kidney, liver, lung, and spleen showed slight tissue reactions which may be interpreted as the result of a mild irritation. Dosage, compound, and route of administration did not produce any essential differences in the histologic changes. These findings are in marked contrast to the well-defined degenerative lesions produced by arsenic, mercury, and bismuth. [A. W. C.]

THE DERMATOLOGIC ASPECTS OF RAT-BITE FEVER

O'LEARY, P. A. (*Arch. Derm. and Syph.*, vol. 9, no. 3, March, 1924), reports two undoubted cases of this disease cured by arsphenamin. Rat-bite fever in general is identified by the history of a bite by a rat, cat or dog, with a primary incubation period of from ten to thirty days before the appearance of local reaction at the site of the bite; by constitutional prodromes and symptoms of a general infection with a two to seven-day intermittent fever; by the fairly characteristic erythematous indurated plaques in the skin which undergo exacerbation with each rise of temperature and subside between times; by the prolonged course (six months) in untreated cases; by the prompt response to the intravenous administration of arsphenamin or neo-arsphenamin; and by the finding of *Spirochaeta morsumuris*. It should be added that the last-mentioned criterion is not essential to diagnosis, as observers outside of Japan have been unsuccessful in isolating the organism. The differential diagnosis of the local reaction may include pyogenic cellulitis, giant chancre and erysipelas; and on the basis of the constitutional symptoms, malaria, relapsing fever and trench fever. The possibility of the acute leprous exanthem must not be overlooked. The treatment of rat-bite fever, as suggested by Hata, consists of the intravenous injection of one of the arsphenamins, given in doses proportional to body weight. It may be necessary to give four or five injections of the drug at five-day intervals, and also to give one or two injections after the temperature has completely subsided, to prevent relapse. Following the first injections of arsphenamin, a Herxheimer-like flare-up of the temperature, with transitory accentuation of the lesions, is the rule. [A. W. C.]

A COMPARATIVE STUDY OF THE HISTOLOGIC CHANGES PRODUCED EXPERIMENTALLY IN THE LIVER AND KIDNEYS OF THE RAT BY ARSPHENAMIN AND NEO-ARSPHENAMIN

KOLMER, J. A., AND LUCKE, B. (*Arch. Derm. and Syph.*, vol. 9, no. 3, March, 1924). There were great individual variations in the histologic changes produced in the different animals; these variations may have been due to differences in susceptibility of the animals and to slight differences in the toxicity of the several preparations of arsphenamin and neo-arsphenamin employed. Arsphenamin produces particularly degenerative and necrotic changes in the liver; in the kidneys there is always found some degeneration of the convoluted tubules and thick limbs of Henle, but frank necrosis rarely occurs. Neo-arsphenamin produces particularly marked degenerative and necrotic changes in the kidneys. Some cytoplasmic swelling with granularity and vacuolization usually occurs in the liver, but necrosis is relatively rarely found. It must be emphasized that the histopathologic changes described were produced in rats by single lethal doses of arsphenamin and neo-arsphenamin from ten to fifteen times larger than those administered at one time to human beings per kilogram of body weight. [A. W. C.]

THE BOSTON Medical and Surgical Journal

Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

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SUBSCRIPTION TERMS: \$8.00 per year in advance, postage paid for the United States, \$7.50 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the printer with galley proof of paper.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to *The Boston Medical and Surgical Journal*, 158 Massachusetts Ave., Boston, Mass.

AN IDEAL INFANT FEEDING METHOD

BREAST feeding, at one time quite out of style, is at last coming into its own again. Pediatricians, obstetricians and family physicians are appreciating its importance more and more; are advocating its general employment more widely, and are endeavoring to disseminate knowledge concerning its proper conduct. It is becoming a matter of pride with some mothers to be able to nurse their infants. The number of articles that are being written at the present day on this particular phase of infant feeding, both for the medical profession and for the laity, furnish ample proof of an awakened interest.

The important practical facts having to do with successful breast feeding are not many, but they are not generally understood. Even its importance is frequently minimized. As proof of its desirability we have only to realize the truth that six times as many bottle fed babies die during their first year as do breast fed. Furthermore we are told by competent observers that the average mother can nurse her baby if she really wishes to and goes about it intelligently.

The absolute contraindications to nursing are few. These include, especially, active tuberculosis in the mother or the presence of a severe and prolonged illness. Breast infection is a

sufficient cause for discontinuing nursing during the duration of the infection. The milk supply may often be restored by proper methods even after a lapse of several weeks. Menstruation and pregnancy are not sufficient reasons for the abandonment of nursing; pregnancy, of course, seldom intervenes before the natural termination of nursing would be in order. The average child should be nursed during the first nine months of life.

Few special dietary efforts should be made on the part of a mother in an attempt to increase her milk supply. Overfeeding is more apt to defeat the end it aims at by causing a revulsion to food; at best it produces a fat mother rather than a fat baby. A normal, well balanced diet, with sufficient fluids, and for the mother sufficient rest and sufficient exercise with freedom from anxiety furnish the ideal conditions for successful nursing. Nursing should be regular, at three or preferably four hourly intervals, using one breast only if possible, but both if necessary, and for a period not to exceed twelve or fifteen minutes. It has been quite conclusively established by fractional weighings that practically all the milk obtained by the infant is withdrawn in the first ten minutes of nursing.

Complete emptying of the breast furnishes the necessary stimulation for further milk secretion. The average robust infant, nursing vigorously, will accomplish this properly if he has not become used to the more easily managed bottle and developed into a malingerer. Small or weak babies may be unable to accomplish this result, in which case it will be necessary to see that the breast is emptied after each nursing by manual expression or "stripping." The breast pump is entirely inadequate to perform this function; unfortunately, in our experience, few mothers or nurses know the technique for efficient expression of the milk—further evidence of the decline of interest in the dairying industry.

The breast, for proper expression, should be grasped gently between the thumb and forefinger, just outside the areola of the nipple. The fingers should be thrust backward, pressed together and quickly drawn forward without changing their position on the breast. This is the only effective method in use, and if properly performed should be without discomfort. Complementary feedings should not be used while there is a chance of maintaining nursing at an effective level, for the provision of an easily obtainable food supply other than the breast is almost certain to be the first step in the weaning process. If complementary feeding must be resorted to, the amounts given should represent the minimum requirements for proper nutrition, and it should be abandoned as rapidly as the breast milk supply is increased.

Some mothers can produce an abundance of milk without effort; a very few are unable to nurse their babies at all; many can nurse ef-

fectively if intelligent efforts are made to instruct and assist them. This duty necessarily devolves upon attending physicians and nurses. Time and again one is met by the statement from obstetricians and nurses, in the earliest days of an infant's life, that the mother will not be able to nurse her infant, and a complementary feeding must be supplied. Seldom is this statement backed up by a conscientious but unsuccessful effort to establish the breast milk. In the midst of our present agitation for a lowered infant mortality, the important factor of maternal nursing must not be neglected.

THE JUGGERNAUT

THE slowly moving centuries are but cogs in a wheel, and time is endless. It had no beginning and man cannot conceive its end; time and space alone are infinity. The limitations of distance are conceivable to man, for these are a part of his world, but the final limitation of time he cannot comprehend.

During the course of the centuries and out of the darkness of the unknown past man has slowly evolved. At first through blind and nature-given instinct, and later through the forces of a gradually developed intelligence he has raised himself painfully and industriously to increasingly higher planes of life. The process has been slow, but sufficient time has been granted for it. Environmental changes have taken place and man has created new environments for himself, but always the changes have been so gradual that the adaptation to them has been incongruous and devoid of marked growing pains. It has been the adaptation of a succession of generations, and not of a single generation; it has been of the genus, not of the individual.

Thus, over a period of many centuries, the inscrutable power that watches over us has seen a train of changing circumstances. Man has changed in his physical attributes and has reached a stage of mental development that has been stationary for a long period. Added experience, memory and the keeping of records have been the chief factors influencing the continued elaboration of our environment. Agriculture, mining and the working of metals were the first deliberate efforts made to change the course of nature and avail ourselves of the national resources with which we were surrounded. Thus successive or parallel experiences in civilization were attained. Through isolated and unassociated efforts we have seen rise the civilization of Babylon, of China and of Egypt, of the Aztec, of Greece and of Rome. Each in turn has fallen, through some weakness that has made perpetuity impossible.

One cannot say that a Foch is more highly developed than a Caesar; an Edison than a Euclid. Added experience and the records of past

experiences have been the stepping stones of advancement. The Foch's and the Edisons have had the achievements of the Caesars and the Euclids to build upon. The developers of science and mechanical ingenuity have had the advantage of the fundamental principles designed by the pioneers. Most of our modern inventions are the natural consequence of the development of previously discovered basic laws; it is rarely that a real discovery is made.

Thus we have come upon an age of prodigious advances in mechanical efficiency. We are part of a civilization, and the first civilization, in which all the world takes part. Will it be a lasting civilization, and what will be its future? Hitherto, as we have mentioned, the progress of the race has been comparatively slow. Man has been able to adapt himself to his own inventions. Within the memory of most of us, however, this progress has been so accelerated as to outstrip, in a few years, the developments of any previous century. Rapid transit, machine made locomotion, has become a pandemic desire. Man is trying to accustom himself to being hurled from one point to another with a speed that would have utterly astonished our grandfathers. The railroad train and the steamship affected our lives only occasionally and for short periods. The automobile is a constant accompaniment of our waking moments; it has become the greatest convenience—and the greatest inconvenience—on earth; it has rendered public the most secluded spot; it has destroyed the peace that all men should expect as part of their lives; it has rendered our cities unfit to live in. Modern plumbing we should be thankful for; the telephone has many uses; radio we can avoid, but the automobile may prove a Frankenstein's monster—a product of man with which he cannot cope.

It is certain that up to date no greater environmental factor has been brought to bear on life than the universal employment of the automobile. Man has never before been found to adjust himself to such utterly changed conditions, and in such a short time. The outcome none can tell. Motor cars are now numbered in millions where horses were formerly employed by thousands, and gasoline has come to flow like water. The popular conception that man may lose the use of his legs through idleness is, of course, absurd; the bodily health and development of the human race was never at a higher level. There is a grave danger, however, that the nervous and mental adjustments to such an overwhelming and unnatural influence may prove difficult to make. It is hard to realize how modernly and how completely our lives have been saturated with this new problem of rapid transportation which is still in a state of development and evolution. Will the race be profoundly affected by it? Will the effects be for better or for worse? No natural

check is in sight. Perhaps a bold Congress will attempt to place a prohibition on gasoline as it has on other intoxicating liquids. In any event, our future attempts at adjustment will make an interesting observation.

THE ANNUAL MEETING

THE annual meeting of the Massachusetts Medical Society will be held at the New Ocean House in Swampscott on June 6th and 7th. This meeting deserves the support of every member of the Society, support which in the recent past has been noticeably lacking, as an average attendance of four hundred from a membership of over four thousand well demonstrates.

Every effort has been made to make this year's meeting attractive both for the members of the Society, and for their families as well. A detailed program is published in this issue of the JOURNAL with an appendix outlining the program for the women. A special committee from the Essex South District Society has been appointed and has worked diligently for the success of the meeting. It is hoped every member will make an effort to attend this year.

MISCELLANY

FRANKLIN COUNTY DISTRICT MEDICAL SOCIETY

THE Annual Meeting of the Franklin County District Medical Society was held at the Weldon, Greenfield, on Tuesday, May 20th, 1924.

PROGRAM

Morning Session was devoted to business.
1.00 p. m. Dinner.

AFTERNOON SESSION

- 2.00 p. m. Recent Advance and Trends in Obstetrics. L. V. Friedman, M. D., Professor of Obstetrics, Tufts College Medical School.
- 3.00 p. m. Recent Advance and Trends in Pediatrics. Robert D. Curtis, M. D., Director of Clinics, Community Health Association, Boston.
- 4.00 p. m. Progress in Hygiene of Maternity and Infancy in Massachusetts in 1923. Mary R. Lakeman, M. D., Assistant Director, Division of Hygiene, State Dept. of Public Health.
- 4.20 p. m. What are We Learning from the Study of Maternal and Infant Deaths? Susan M. Coffin, M. D., State Dept. of Public Health.
- 4.40 p. m. What are We Learning from the Survey of Child Hygiene Activities. Miss M. Gertrude Martin, State Dept. of Public Health.
- 5.30 p. m. Problems and Progress in Maternal and Infant Hygiene in this Vicinity. Physicians and Nurses in Greenfield and vicinity.

In the papers and discussions new ideas were brought out and great interest was shown.

The officers elected for the ensuing year are as follows:

- President*—Frank A. Millett, M. D.
- Vice President*—Patrick F. Leary, M. D.
- Secretary-Treasurer*—Chas. Moline, M. D.
- Commissioner of Trials*—Patrick F. Leary, M. D.
- Censors*—Benjamin P. Croft, M. D., Harry N. Howe, M. D., C. L. Upton, M. D., John W. Cram, M. D., Alfred E. Johnson, M. D.
- Councillors*—George P. Twitchell, M. D., Benjamin P. Croft, M. D.
- Nom. Councillor*—George P. Twitchell, M. D.

CONTINUED REPORT OF THE ANNUAL MEETING OF THE WORCESTER COUNTY DISTRICT MEDICAL SOCIETY

Resolutions were read on the deaths of Drs. Leach of Roachdale, Jordan of Worcester and Comey of Augusta, Ga., were read. Announcement of the death of Dr. Charles B. Stevens was made and Drs. R. P. Watkins, L. C. Miller and G. A. Tripp were appointed to draw up resolutions. It was voted to make up the deficit of the funds committee from the treasury.

After the dinner the Secretary of the Chamber of Commerce, Mr. R. H. Goddard, addressed the society on what the Chamber could offer the physicians in the line of telephone service. He said that the Telephone Company has agreed to insert under each physician's name in the Telephone Directory the statement "if you get no answer call—." This number the Chamber of Commerce will answer and will take care of such calls as come for the individual physician during his temporary absence from his telephone. This is practically the same method as adopted by the physicians of Hartford, Conn. A committee consisting of Drs. Talbot, Cook, Delehanty, Alton and Fisher was appointed to take up the matter with power to act.

Dr. R. P. Watkins gave the annual oration on The History of Surgery which was listened to with close attention.

After the oration the new president was introduced who with a few well chosen words expressed his appreciation of the honor and announced that he hoped the trend of the meetings for the next year would be along the lines of preventive medicine. He spoke of the value of the public meeting held last March and on vote of the society he appointed as a committee on Public Instruction the following members, Drs. Marsh, Bryan, Kenney, Washburn and Fowler.

Several subjects of general interest to the society in regard to biographies of the members, notices of the meetings and chiropractors, which were brought up by Drs. Trowbridge and Ellison, were postponed until the September meeting because of the lateness of the hour.

REPORT OF THE FRAMINGHAM DEMONSTRATION TO BE PRESENTED BEFORE THE INTERNATIONAL HEALTH CONFERENCE

THE tuberculosis demonstration at Framingham, Mass., which accomplished a radical cut in the death rate from the disease in that city over a period of seven years, will be prominently featured before the International Health Conference at Wembley, England, May 21-24. Dr. Ralph C. Matson of Portland, Ore., has been invited to present the story of Framingham in an address. The invitation comes to him from Olga Nethersole, the famous actress, who is honorary organizer of "The People's League for Health" under whose auspices the meeting is being held. Physicians and social workers from all parts of Europe will be present.

The conference will also issue a monograph, giving the full details of the Framingham demonstration, which has been prepared from material furnished by Dr. Donald B. Armstrong of the Metropolitan Life Insurance Company, who was in charge of the demonstration.

The Framingham demonstration accomplished a reduction in the tuberculosis death rate in that city of more than twice the decrease in similar "control" cities. Thorough physical examinations revealed many hitherto undetected cases, found in the early stages of the disease, which yielded to treatment. Children with tuberculous tendencies were given special attention in open air camps and the public was continually instructed as to proper precautions, hygienic practice and proper diet. The demonstration was financed by the Metropolitan. It was conducted by the National Tuberculosis Association, in cooperation with the local health agencies.

SUMMARY OF PROVISIONAL BIRTH AND MORTALITY FIGURES: 1923

THE Department of Commerce announces that birth rates for 1923 were lower than for 1922 in 21 of the 27 states for which figures for the two years are shown in the following summary. The highest 1923 birth rate (34.8 per 1,000 population) is shown for cities of Wyoming and the lowest (15.6) is for rural districts of Montana.

Death rates for 1923 were slightly higher than for 1922 in 25 of the 36 states shown for both years. Three states, Connecticut, New York, and North Carolina, have the same rates for 1923 as for 1922 and eight states, Colorado, Idaho, Montana, Nebraska, Oregon, South Carolina, Utah and Washington, have lower rates in 1923. The highest 1923 death rate (20.3 per 1,000 population) is shown for cities of Mississippi and the lowest (6.5) for the rural districts of Idaho.

Infant mortality rates for 1923 are generally higher than those for 1922, as 17 of the 27 states

show higher rates in 1923. The highest 1923 infant mortality rate (117) appears for cities of South Carolina and the lowest (51) for the rural districts of Utah and the cities of Washington. Infant mortality rates are shown for both years for 45 cities of 100,000 population or more in 1920. For 25 of these cities the 1923 infant mortality rates are lower than those of the previous year. The highest 1923 rate (110) is for Richmond and the lowest (48) for Spokane.

UNWARRANTED CLAIMS RELATING TO REDUCTION OF DANGER OF CARBON MONOXIDE

INVESTIGATION of a certain chemical compound, the spraying of which in garages was claimed to reduce the danger of carbon monoxide poisoning from exhaust automobile gases, made by Department of the Interior chemists at the experiment station of the Bureau of Mines in Pittsburgh, fails to substantiate the claims of the manufacturers.

In its investigations relative to reducing the hazards of carbon monoxide poisoning, the Bureau of Mines recently had its attention drawn to this compound which is sold under a trade name. The advertising matter issued by the manufacturers claims that the compound "holds chlorine and oxygen gases in solution with formaldehyde, which unites with the hydrogen to form hydrochloric acid, giving an over-supply of oxygen which burns up carbon just as a piece of wood is burned in the fire. The formaldehyde in the composition of the compound is a great affinity for ammonia and hydrogen sulphide gases."

Details of these tests are given in Serial 2594, by A. C. Fieldner and W. P. Yant, copies of which may be obtained from the Department of the Interior, Bureau of Mines, Washington, D. C.

MAGAZINE FOR BLIND CHILDREN

"THE School Magazine," a Braille magazine for blind children, has been established in England, reported to be the first of its kind. It contains essays, poetry, humor and a competition page.—*Children's Bureau, U. S. Dept. Labor.*

RESUME OF COMMUNICABLE DISEASES April, 1924

GENERAL PREVALENCE

The prevalent diseases showing an increase over the previous month were as follows:

	April 1924	March 1924	April 1923
Diphtheria	675	648	609
Measles	4,196	4,052	3,863
Pneumonia, lobar	602	556	463

RARE DISEASES

Anterior poliomyelitis was reported from Everett, 1; Fall River, 2; Lowell, 1; Methuen, 1; Webster, 2; total, 7.

Anthrax was reported from Easton, 1.

Dog-bite requiring anti-rabic treatment was reported from Boston, 4; Cambridge, 3; Lawrence, 3; Lowell, 4; Somerville, 1; Spencer, 1; Winthrop, 1; total, 17.

Encephalitis lethargica was reported from Boston, 7; Cambridge, 1; Lawrence, 1; Malden, 1; New Bedford, 1; Newburyport, 1; total, 12.

Epidemic cerebrospinal meningitis was reported from Boston, 1; Cambridge, 2; Fall River, 1; Lowell, 1; Northampton, 2; Somerville, 1; Taunton, 1; total, 9.

Hookworm was reported from Boston, 1.

Malaria was reported from Brockton, 1; Cambridge, 3; Plymouth, 1; Worcester, 1; total, 5.

Pellagra was reported from Boston, 1.

Septic sore throat was reported from Boston, 2; Dover, 3; Fairhaven, 2; Fall River, 1; Gill, 4; Medford, 1; Natick, 4; total, 17.

Tetanus was reported from Boston, 2; Lowell, 1; total, 3.

Trachoma was reported from Boston, 4; Cambridge, 1; Lowell, 1; Medford, 1; Watertown, 1; Worcester, 1; total, 9.

Trichinosis was reported from Boston, 2.

DISTRIBUTION

All Communicable Diseases

	April 1924	April 1923
Total cases (all causes)	11,979	10,912
Case rate per 100,000 population	299.2	274.8

Certain Prevalent Diseases

	April 1924	April 1923
Diphtheria:		
Total cases	675	609
Case rate per 100,000 population	16.9	15.3

Cities and towns noticeably exceeding their median endemic indexes*:

New Bedford (6)	15	Malden (7)	19
Braintree (1)	10	Revere (6)	14
Amesbury (1)	8	Lawrence (7)	24
Chelsea (3)	11	Worcester (28)	46
Haverhill (12)	16		

	April 1924	April 1923
Measles:		
Total cases	4,196	3,863
Case rate per 100,000 population	104.8	97.3

Cities and towns noticeably exceeding their median endemic indexes*:

Barnstable (0)	9	Waltham (12)	187
Plymouth (1)	42	Woburn (3)	57
Brockton (18)	37	Clinton (1)	29
Brookline (31)	82	Fitchburg (20)	47
Medfield (0)	8	Hardwick (0)	26
Millis (0)	12	Lancaster (0)	12
Milton (3)	40	Northboro (1)	9
Newton (16)	168	Webster (4)	46
Quincy (29)	289	Chicopee (0)	101
Everett (49)	66	Deerfield (0)	22
Gloucester (0)	32	Holyoke (4)	39
Lynn (22)	134	Longmeadow (0)	33

Marblehead (0)	16	Northampton (10)	46
Peabody (5)	40	South Hadley (0)	16
Rockport (0)	9	Springfield (16)	336
Swampscott (0)	25	W. Springfield (0)	38
Acton (0)	31	Greenfield (2)	265
Ayer (0)	19	Montague (0)	41
Medford (26)	87	North Adams (2)	39
Shirley (0)	22	Williamstown (0)	11
Somerville (15)	123		

	April 1924	April 1923
Scarlet fever:		
Total cases	1,723	1,419
Case rate per 100,000 population	43.0	35.7

Cities and towns noticeably exceeding their median endemic indexes*:

Fall River (15)	66	Billerica (0)	4
Brockton (17)	36	Hudson (0)	10
Cambridge (41)	71	Lowell (12)	26
Dedham (2)	11	Medford (7)	26
El Bridgewater (0)	10	Somerville (27)	45
Wellesley (4)	17	Watertown (3)	37
Weymouth (4)	24	Winchester (2)	8
Beverly (3)	10	Ashburnham (0)	17
Everett (12)	39	Gardner (2)	9
Hamilton (0)	5	Fitchburg (1)	58
Malden (13)	61	Leominster (2)	41
Melrose (2)	16	Worcester (48)	86
Peabody (2)	19	Chicopee (3)	7
Salem (13)	20	Springfield (24)	88
Winthrop (5)	24	Westfield (2)	22
Andover (1)	9	Orange (0)	13
Belmont (3)	11	Pittsfield (8)	24

	April 1924	April 1923
Typhoid fever:		
Total cases	31	41
Case rate per 100,000 population	.77	1.0

	April 1924	April 1923
Whooping cough:		
Total cases	394	1,433
Case rate per 100,000 population	9.8	37.4

Cities and towns noticeably exceeding their median endemic indexes*:

Attleboro (0)	24	Amesbury (0)	13
Fall River (12)	36	Lynn (9)	21
New Bedford (8)	13	Worcester (20)	57

	April 1924	April 1923
Tuberculosis, pulmonary:		
Total cases	506	472
Case rate per 100,000 population	12.6	11.9

	April 1924	April 1923
Tuberculosis, other forms:		
Total cases	132	85
Case rate per 100,000 population	3.3	2.1

*The Median Endemic Index is obtained by arranging in arithmetical sequence the monthly totals of reported cases for the past five years and selecting the middle figure. The numbers in parentheses after the name of each city and town indicate the median endemic index for that city or town; the numbers without parentheses indicate the cases reported during the current month.

NEWS ITEMS

ANNOUNCEMENT.—Dr. Lyman Richards has opened an office at 270 Commonwealth Avenue, Boston.

THE BOARD OF TRUSTEES of The Rockefeller Institute for Medical Research announces the election of Dr. Francis Gilman Blake of the Yale Medical School to the Board of Scientific Directors of the Institute to fill the vacancy created by the death of Dr. Hermann M. Biggs.

DR. E. V. COWDRY of The Rockefeller Institute for Medical Research sailed recently for South Africa via England to spend a year at the Transvaal University College in Pretoria at the invitation of the Dean of the Veterinary Division, Sir Arnold Theiler, where he plans to study the life cycle of protozoa causing diseases of domestic animals.

CELEBRATION OF HOSPITAL DAY AT THE LAWRENCE GENERAL HOSPITAL.—Special invitations were issued to the people of Lawrence to attend a celebration at this hospital on the anniversary of the birth of Florence Nightingale.

Leaflets setting forth the accomplishments and the needs of the hospital were distributed. An especial appeal was made for an extension of the maternity department and for more private rooms.

REMOVALS

DR. ALBERT C. GETCHELL announces the removal of his office to Pleasant Chambers, 28 Pleasant street, Room 505, Worcester, Mass.

DR. HENRY R. VIETS announces the removal of his office to the Hotel Canterbury, 14 Charlesgate West, Boston.

DR. C. H. MACE and DR. R. G. Mace are both now at 306 Westfield street, Mittineague.

DR. E. H. MACMICHAEL is now at North Edgecomb, Maine.

DR. H. L. CHASE has returned from Hathorne to his old home, 126 Harvard St., Brookline.

DR. GEORGE MOSSMAN of Westminster has an office in Gardner at 7 East Broadway.

DR. ALVARD G. NICHOLS has moved from Worcester (Worcester) to Boston (Suffolk), 29 Gainsborough St.

DR. FRED E. VARNEY has returned from Mesterleigh, Staten Island, to North Chelmsford.

DR. ALFREDA B. WITTINGTON has moved from Pittsfield to Pine Mountain Settlement School, Pine Mountain, Kentucky.

DR. WILLIAM F. DOLAN has moved from Brighton to Arlington. His office is at 224 Commonwealth Ave., Boston.

DR. MASON R. PRATT's address is now 368 Belmont St., Fall River.

DR. EMILY CLARK MACLEOD is now at 24 Newbury St., Boston.

DR. JOSIAH P. BIXBY has returned to Woburn from Dorchester. His address is 26 Ward St.

DR. DAVID TOWNSEND of Brookline has a temporary address at the National Sanatorium, Johnson City, Tenn.

DR. CHARLES JURIST of Springfield now has his office at 235 Main St.

DR. FRANK A. MILLETT has removed from 54 to 78 Federal St., Greenfield.

DR. GEORGE B. STEVENS is now at 40 Manthorne Road, West Roxbury.

THE RECONSTRUCTION CLINIC, on and after June 1, 1924, will be located at its new and enlarged quarters at 366 Commonwealth Avenue, Boston, Mass., corner of Massachusetts Avenue.

M. A. COHEN, M. D., and L. FELDMAN, M. D., announce the removal of their offices on June 1, 1924, to 366 Commonwealth Avenue, Boston, Mass., corner of Massachusetts Avenue.

OBITUARIES

REPORT OF THE COMMITTEE APPOINTED TO THE WORCESTER DISTRICT MEDICAL SOCIETY ON THE DEATH OF DR. PERLEY PIERCE COMEY

DR. PERLEY PIERCE COMEY, formerly of Worcester, died in Augusta, Ga., on March 10th, 1924. The life history of Dr. Comey is one of unusual interest.

He was born in Holliston, Mass., January 14th, 1852, and continued to reside there till 1860, when his family moved to Hopkinton, Mass. Here he attended the public schools, but later became enrolled in a private school in Worcester. After completing the school year he learned the apothecary business, and after a short period began the study of medicine in the office of Dr. A. P. Richardson at Boston, and later at the Harvard Medical School, from which he was graduated in 1878. In August of that year he settled in Clinton. There and amid the surrounding towns, for a period of nineteen years, he was engaged in a large and active practice, being admired, loved and revered by a host of grateful patients, and by the community at large.

While a resident of Clinton he was honored in serving the town as Chairman of the Board of Selectmen, and also as Chairman of the Board of Health. He rendered most efficient aid in es-

tablishing the Clinton Hospital, with which he afterwards became associated as one of its visiting staff, and therein gave to the community the benefit of his valuable and professional service.

He became a member of Trinity Lodge and Clinton Royal Arch Chapter of Masons, and Worcester County Commandery, also, a member of the Knights of Pythias and Clinton Lodge of Odd Fellows.

On account of the death of Dr. Chas. H. Davis in Sept. 1897, Dr. Comey, having acquired the residence and office of Dr. Davis situated on the corner of Lincoln and Kendall Sts., at once removed to Worcester, where, for a second time, he began to engage in a wide and extensive professional career, endearing himself to those with whom he became associated, whether as friend or patient. While residing here he was honored by this Society as its President in the years 1897-99.

In 1911, on account of failing health, Dr. Comey was compelled to seek a more favorable climate, and hence, removed south, finally settling in Augusta, Ga., where, for a third time, he assumed new professional relations. In that locality he at once gained the confidence of the people and established himself as one of the foremost of the profession.

He was appointed as assistant lecturer in medicine in the University of Georgia, which position he retained for several years. During the summer months he was wont to return to Worcester and take up his professional duties, and again renew the old and pleasant associations of former years.

In the death of Dr. Comey this Society loses a loyal devotee to the profession and the community will miss a man whose place it will be difficult to fill. Dr. Comey was born to be a physician. He possessed those sterling qualities which belong to a *real man*. He was always cheerful and optimistic with his patients who highly valued his encouraging advice and became stimulated to new efforts by his sympathetic nature in their behalf.

He was a staunch advocate of the principles and ethics of the profession and ever maintained the high ideals thereof, by an exemplary life of sacrifice and devotion to his patients.

Those of us who knew him intimately will miss his genial greeting and warm clasp of the hand, which revealed his true and real inner feelings.

We, as a Society, together with his wife, daughter, son, brother and sister, reverently mourn his death, and this Society extends to them our deep sympathy.

Respectfully submitted,

EDWARD H. TROWBRIDGE,
CHAS. L. FRENCH,
JOHN C. BERRY,

Committee.

CHARLES BENJAMIN STEVENS, M. D.

DR. CHARLES B. STEVENS died suddenly at his home in Worcester of Angina Pectoris after a few days' illness, May 14, 1924, at the age of fifty-eight.

He was for years chief of the visiting staff of the isolation wards of the Belmont Hospital and was a consulting physician of Worcester City hospital, Memorial hospital and Fairlawn hospital. He enjoyed much personal popularity in his profession, having many warm friends among his confreres.

Charles Benjamin Stevens was born in Worcester, Nov. 21, 1865, the son of Lewis H. and Sarah (Ransom) Stevens. He graduated from the Worcester Classical High school in 1883, from Amherst college in 1887 and from the Harvard Medical school in 1894. After finishing his service as interne in Boston City hospital and McLean hospital, he started the practice of medicine in Worcester in 1894, most of the time up to a few months ago at 61 Pearl street.

Dr. Stevens offered his services to the government after the United States entered the World War, and in August, 1918, was commissioned as captain in the army medical corps, and ordered to the camp at Syracuse, N. Y. He was there in the influenza epidemic, and for his notable service in fighting the deadly malady was promoted to major in October. He was transferred to the base hospital at Camp Devens in December and made chief of the medical staff.

Having gained some experience in the care of contagious diseases in the wards of the Boston City Hospital, and coming to Worcester when the use of anti-toxin in the treatment of Diphtheria was in its infancy Dr. Stevens soon acquired a skill in diagnosis and treatment of contagious diseases that placed him in the position of consultant for the entire district.

In the early part of his practice he was connected with the surgical department of the Worcester City Hospital but he soon gave this up and devoted a large part of his time to his specialty.

He became visiting physician to the Isolation Hospital when it was first opened and continued in that capacity until his death.

He was a member of the Worcester club, Tatnuck Country club, Amherst Alumni association and Economic club, and of the Worcester District Medical society, Massachusetts Medical society, being a Councilor from Worcester at the time of his death, American Medical association, and also the Practitioners' club of Worcester. He was a Mason and a member of Quinsigamond lodge, A. F. & A. M.

Dr. Stevens married Elizabeth Searle in 1922. She survives him, as do also his father; a brother, L. Everett Stevens, and a sister, Elizabeth, wife of Charles M. Woodbury of Sutton.

For his sterling qualities as a man, his fairness in his dealings with everyone, his kindly-

ness and sympathy towards his patients and his willingness to help his fellow practitioners in their problems the entire medical profession of this whole district honors him, and it knows, better than the people living in this district can know, what a loss the whole community has suffered.

It can be truly said that no physician was more universally respected and admired by his fellow practitioners than Dr. Stevens.

INSURANCE OF SCHOOL CHILDREN

SWITZERLAND is the first country to inaugurate government insurance of school children. In some cantons it is voluntary and in some compulsory. The Canton Vaud was first to insure its children. In 1922 the government of the Canton Basel insured against sickness and accidents all pupils in the public schools, from kindergartens to the higher grades of the industrial schools. Other cantons and municipalities have taken steps in the same direction. In this, as in the other forms of government insurance, the premiums are paid jointly by the children and the government. It is reported that a bill for insurance of school children against sickness has been introduced in the Portuguese Senate.—*Children's Bureau, U. S. Dept. Labor.*

CORRESPONDENCE

CENTRAL NEW ENGLAND SANATORIUM AND INDUSTRIAL COLONY IN RUTLAND

May 10, 1924.

Editor, Boston Medical and Surgical Journal:

With the desire of bringing to the attention of the medical profession the work of the recently opened Central New England Sanatorium and Industrial Colony in Rutland, Massachusetts, I venture to offer you the following quotation from the pages of the Directors' First Annual Report, about to be published.

It is perhaps well to introduce the subject by saying that this institution, intended chiefly for the use of the "middle economic group," was begun a few years ago. When well on its way towards completion, advances were made by the representatives of the United States Public Health Service, both in Boston and Washington, for the purpose of purchasing the buildings for the use of soldiers who had contracted tuberculosis. After due consideration by the Directors, it was believed that such action was in accordance with "doing the greatest good to the greatest number" at a critical time, and although it was a departure from the original intention, which was to build an institution for civilians of moderate means only, the original building was sold to the government, and it now has under treatment about one hundred and fifty tuberculous soldiers, with the prospect of enlargement in order to receive a much greater number later. These buildings now bear the name of the United States Veterans' Hospital.

With the money obtained from this sale the original plan was adopted and another site in the town of Rutland was purchased. The quotation below from the Report of the Directors of the Central New England Sanatorium, Inc., speaks for itself and deserves the attention of all who are interested in the problem of anti-tuberculosis work.

It should be distinctly understood that this institution is intended as a semi-charitable one and will

be so arranged that any possible excess of income will be put into that portion which is intended for people of very moderate means who have been self-supporting and who cannot afford to enter the more expensive sanatoria.

All applications for entrance and inquiries should be addressed to the Superintendent of the Central New England Sanatorium, Rutland, Massachusetts.

Very truly yours,

VINCENT Y. BOWDITCH.

EXTRACT FROM DIRECTORS' FIRST ANNUAL REPORT

The agricultural properties, purchased at a moderate price, consist of about 350 acres of fine land originally operated as a model dairy farm, and upon which about six years ago some 2000 apple trees were planted, town water and electricity having been already installed by former occupants. Some excellent buildings for farm purposes are upon the property, which is beautifully situated on a hillside about three-quarters of a mile from the village, not far from the Rutland station on the Massachusetts Central Railroad.

In the autumn of 1923 the new sanatorium, capable of receiving patients of both sexes, was completed, and a series of poultry houses, placed within easy access, have been in use during the past winter and already give occupation to some former patients and are a source of income to the sanatorium.

A residence for the medical superintendent is now in process of erection, and it is planned as the work expands and funds permit to have an administration building as the center of a group of structures suitable for the accommodation of patients of the "middle economic group." A building for those who can afford higher rates is also planned for the immediate vicinity, any surplus income from which will be devoted to the interests of the whole institution. This feature of the work is now situated in the village of Rutland as a temporary measure, until sufficient money has accumulated to make possible the construction of a suitable building in close proximity to the present sanatorium.

An occupational plan by which patients in their convalescence can become wage-earners again is perhaps the most important feature of the present work, upon which the Directors wish to lay stress as it marks a great step forward in the problem of meeting the tuberculosis question. When complete this will result in an industrial colony which is intended to be an expansion of what has been a special feature of tuberculosis work in Rutland for the past nine years, represented by the Workshop and Recreation Building, which was originally founded by the so-called "Rutland Private Sanatorium Association," but which later was destroyed by fire during its lease to and operation by the government as a vocational school for tuberculous soldiers. This incorporated association was finally combined with the Central New England Sanatorium, and under the name and management of the latter corporation the present industrial activities are now being conducted. With increased funds it is the intention of the corporation to amplify this part of the work later, whereby not only the occupants of the sanatorium and other patients in Rutland may be enabled to work at lucrative and healthful employment, but, by the erection of small cottages, sanatorium graduates who are advised to stay in the country can live with their families and receive the benefit of employment in the workshops or in the large orchards and poultry farm now in operation by the corporation. The now well known Industrial Settlement at Papworth Hall, near Cambridge, England, where tuberculous patients with their families are living and working under Dr. Varrier-Jones, is an example of what is planned in Rutland.

The great value of sanatorium treatment must never be underestimated. It is now generally recog-

nized, however, that sanatorium treatment alone, unaided, cannot meet all the requirements that are necessary in many cases of tuberculosis. The chief aim, therefore, of those in charge of this work is to develop the idea of after-care and post-sanatorium employment, which is a most important feature of the whole problem of checking the ravages of tuberculosis and a potent aid in the cause of preventive medicine. As the plan develops, training and employment may be possible in the following methods of livelihood: viz., care of orchards (apples and other small fruits); growth of evergreen and other decorative shrubs; poultry and sheep raising; care of bees; woodworking, including chair and furniture making; handicrafts, hand and power weaving; watch repairing; leather and jewelry work.

As a concrete instance of practical results already accomplished it may be stated that in 1918 the average earnings of the patients in the then existing workshop of the Rutland Private Sanatorium Association were \$12.04 a week, against a weekly cost of maintenance ranging between \$10 and \$12. The establishment of such a colony therefore can be of marked advantage in the following directions by offering:

TO THE PATIENT:

- a.—*Sanatorium Treatment* on the most scientific basis for patients of both sexes in the "Middle Economic Group" who can only afford to pay a price equal to or possibly less than the cost of maintenance.
- b.—*Occupational Therapy* as a means of increasing the patients' mental balance during the long period of treatment.
- c.—*Productive Occupations* at the earliest possible moment.
- d.—*Remunerative Employment* by part or whole time application.
- e.—*Hygienic Living Conditions* either in cottages or dormitories.
- f.—*Medical Supervision* over all activities.

TO THE FAMILY:

- a.—*Reunion of its members* under conditions that eliminate the danger of contagion or infection.
- b.—*Employment* to all its well members.

TO THE EMPLOYER:

- a.—*Reduction in Cost* of sick benefit maintenance of employees.
- b.—*Placement in Re-employment* of the faithful substandard tuberculous employee.
- c.—*Freedom from Infection* among employees through the removal of an employee of uncertain health.

TO THE COMMUNITY:

- a.—*A Research Laboratory* for the reconstruction problems of tubercular people by co-operating with other agencies and by disseminating information and results.
- b.—*Relief from Responsibility of the After-Care* of the Tuberculous, which so affects the social service agencies, charity aids, and the community in general.
- c.—*A Great Saving of Lives, Wealth and Labor.*

The following well-known experts in tuberculosis work among the medical profession and the laity have given the most enthusiastic and cordial endorsement of this Rutland plan, viz:

- Dr. E. R. Baldwin of Saranac Lake, N. Y.
Dr. Lawrason Brown of Saranac Lake, N. Y., President of the American Sanatorium Association.
Dr. Livingston Farrand, for ten years Executive Manager of the National Tuberculosis Association, and now President of Cornell University.

Mr. T. B. Kidner, Institutional Secretary of the National Tuberculosis Association.

Dr. James Alexander Miller of New York, ex-President of the National Tuberculosis Association.

Dr. Donald B. Armstrong, Executive Officer of the National Health Journal.

Colonel George E. Bushnell, U. S. A.

Mr. James P. Munroe, President and Treasurer of the Munroe Felt and Paper Company, ex-Vice-Chairman of the Federal Board of Vocational Education, Washington.

With the knowledge of the foregoing facts, the Directors confidently ask for generous aid from the public in support of a plan which will prove of great service to the public health throughout our country. The realization of the hopes of the founders will mark a distinct advance beyond present methods of reducing the mortality of tuberculosis. It should be definitely understood that this is a *non-profit-making* institution. What more gratifying service to mankind could one find than to generously aid such endeavor?

VINCENT Y. BOWDITCH, M.D.,
MRS. L. CARTER FENNO,
MR. LEONARD W. CRONKHITE,
BAYARD T. CRANE, M.D.,
EDWIN A. LOCKE, M.D.,
MR. B. NASON HAMLIN,
MR. ISAAC SPRAGUE,
MR. WM. E. STANWOOD,
MR. MAX O. WHITING,
MR. CHARLES A. BARTON,

Directors.

NOTICES

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

WEEK ENDING MAY 17, 1924

Disease	No. of Cases	Disease	No. of Cases
Anterior poliomyelitis	2	Ophthalmia neonatorum	20
Chickenpox	166	Pneumonia, lobar	126
Diphtheria	127	Scarlet fever	383
Dog-bite requiring anti-rabic treatment	8	Septic sore throat	1
Encephalitis lethargica	4	Syphilis	52
Epidemic cerebrospinal meningitis	1	Tetanus	1
German measles	101	Suppurative conjunctivitis	21
Gonorrhea	99	Trachoma	1
Influenza	19	Tuberculosis, pulmonary	165
Measles	710	Tuberculosis, other forms	23
Mumps	312	Typhoid fever	9
		Whooping cough	117

MEETING OF THE AMERICAN ACADEMY OF PHYSIOTHERAPY

There will be a special meeting of the American Academy of Physiotherapy, held at 10 A. M., Monday, June 9, at Roosevelt Hall, Room 1220, State and Lake Building, 190 North State Street, Chicago, Ill. The program will include papers by Drs. Coulter, Corbus and Novak of Chicago, Corbusier of New Jersey, Stewart of Connecticut, Price and Kinney and Hutchins of New York, J. Madison Taylor of Philadelphia, and Granger of Boston. The secretary of the society is Dr. Byron Sprague Price, 17 East Thirty-eighth Street, New York City; the president, Dr. Frank B. Granger, 520 Commonwealth Avenue, Boston, Mass. The medical profession is cordially invited to attend the session.

OFFICIAL ANNOUNCEMENT OF THE
MASSACHUSETTS MEDICAL SOCIETY

The One Hundred and Forty-Third Anniversary of the Massachusetts Medical Society will be held Friday, June 6, and Saturday, June 7, 1924, at the New Ocean House, Swampscott.

General Information

A Bureau of Information will be maintained by the Committee of Arrangements during Friday and Saturday at the desk of the New Ocean House. A circular of the committee as to hotel accommodations and entertainments is enclosed with this program.

All Fellows are requested to register and to procure their dinner tickets as soon as they arrive.

A cordial invitation is extended to the wives and families of Fellows to attend the convention, and arrangements have been made for their entertainment.

Kindly fill in and return the enclosed post card regarding reservations as early as possible.

Friday Morning, June 6, 1924

Friday morning will be given up to registration and recreation. See circular of the Committee of Arrangements.

11.30 O'CLOCK

ANNUAL MEETING OF THE SUPERVISING CENSORS

Friday Noon

ANNUAL MEETING OF THE COUNCIL

12 O'CLOCK

Following the meeting of the Council, the Cotting Lunch will be served to Councilors.

Friday Afternoon, June 6, 1924

MEETING OF THE SECTION OF MEDICINE

2 O'CLOCK

Officers of the Section of Medicine

Dr. Edwin A. Locke, Boston, *Chairman*.
Dr. W. Richard Ohler, Boston, *Secretary*.

1. *The Product of Present Day Medical Education.*

By Dr. David L. Edsall, Boston.

Discussion opened by Dr. Stephen Rushmore and Dr. A. S. Begg, Boston.

2. *Treatment of Exophthalmic Goiter.*

By Dr. G. W. Holmes, Dr. J. H. Means, Dr. C. A. Porter, Dr. E. P. Richardson, Dr. M. P. Starr, Boston.

Discussion opened by Dr. F. H. Lahey and Dr. C. C. Sturgis, Boston.

3. *Hypertension.*

By Dr. Frederick R. Barnes, Fall River. Discussion opened by Dr. E. A. Bates, Springfield, and Dr. T. J. O'Brien, Boston.

4. *Concentrated Anti-Pneumococcus Solution.*

By Dr. Lloyd D. Felton, Harvard Medical School.

Discussion opened by Dr. M. J. Rosenau and Dr. Hans Zinsser, Boston.

5. *The Clinical Aspects of Erythremia.*

By Dr. Thomas B. Fletcher, Johns Hopkins University, Baltimore.

Discussion opened by Dr. G. R. Minot and Dr. R. Fitz, Boston.

MEETING OF THE SECTION OF HOSPITAL
ADMINISTRATION

2 O'CLOCK

Officers of the Section of Hospital Administration

Dr. Henry M. Pollock, Boston, *Chairman*.
Dr. Edmund W. Wilson, Boston, *Secretary*.

1. *The Relation of the Teaching Hospital to the Medical School.*

By Dr. Alexander S. Begg, Boston, Dean of the Boston University School of Medicine.

2. *The Organization of a Mental Hospital Staff.*

By Dr. William A. Bryan, Worcester, Superintendent of the Worcester State Hospital.

3. *The Responsibility of the Hospital in the Teaching of Surgery.*

By Dr. J. Emmons Briggs, Boston, Surgeon-in-Chief of the Massachusetts Homeopathic Hospital.

MEETING OF THE SECTION OF OBSTETRICS AND
GYNECOLOGY

2 O'CLOCK

Officers of the Section of Obstetrics and Gynecology

Dr. Charles E. Mongan, Somerville, *Chairman*.
Dr. Frederick C. Irving, Boston, *Secretary*.

1. *The Relation of Obstetrics to Preventive Medicine.*

By Dr. William E. Studdiford, New York City, Professor of Obstetrics and Gynecology, Columbia University.

Discussion opened by Dr. A. K. Paine, Boston, Tufts College Medical School; Dr. E. P. Ruggles, Boston, Massachusetts Homeopathic Hospital; Dr. T. M. Gallagher, Newton, St. Elizabeth's Hospital.

2. *Round Table Conference.*

Dr. Louis E. Phaneuf, Boston, *Chairman* of Conference. Subject: *Should the International Classification of Deaths in the Puerperal State be Modified?*

Discussion opened by Dr. Charles E. Mongan, Somerville; Dr. Richard Dutton, Wakefield; Mr. Edgar A. Bowers,

Framingham, State Registrar of Vital Statistics, The Commonwealth of Massachusetts.

Friday Evening, June 6, 1924

The hotel will serve a regular dinner. It is hoped that the Fellows may be able to group themselves by classes.

THE SHATTUCK LECTURE

8 o'clock

Psychiatry and the Practice of Medicine.

By Dr. C. Macfie Campbell, Director, Boston Psychopathic Hospital.

After the lecture there will be a cabaret supper and dancing until 11.30 p. m. All Fellows and their families are cordially invited.

Saturday Morning, June 7, 1924

MEETING OF THE SECTION OF TUBERCULOSIS

9.30 o'clock

Officers of the Section of Tuberculosis

Dr. Henry Colt, Pittsfield, *Chairman*.

Dr. Patrick J. Sullivan, Dalton, *Secretary*.

1. *The Tuberculous in Industry.*
By Dr. Horace J. Howk, Mt. McGregor Sanatorium, New York State.
Discussion opened by Dr. J. B. Hawes, 2d, and Dr. Harry Linenthal, Boston.
2. *The Preventorium, its Growth and Future.*
By Dr. Walter A. Griffin, Sharon Sanatorium.
Discussion opened by Dr. Joseph Garland, Boston, and Dr. Olin S. Pettingill, Middleton.
3. *Tuberculosis, the Social Disease.*
By Dr. Parker M. Cort, Springfield.
Discussion opened by Dr. E. O. Otis and Dr. J. B. Hawes, 2d, Boston.
4. *Active Use of the Chest in Pulmonary Tuberculosis.*
By Dr. Samuel Delano, New Britain, Connecticut.
Discussion opened by Dr. H. D. Chadwick, Westfield, and Dr. W. R. P. Emerson, Boston.

MEETING OF THE SECTION OF PEDIATRICS

9.30 o'clock

Officers of the Section of Pediatrics

Dr. William W. Howell, West Roxbury, *Chairman*.

Dr. J. Herbert Young, Newton, *Secretary*.

1. *Acute Intestinal Obstruction in Childhood.*
By Dr. William E. Ladd, Boston.
Discussion opened by Dr. Edward P. Richardson, Boston.
2. *Mental Hygiene and its Relation to Pediatrics.*
By Dr. Douglas A. Thom, Boston.

Discussion opened by Dr. Bronson Crothers, Cambridge.

3. *The Diagnosis of Endocrine Disorders.*
By Allen Winter Rowe, Ph.D., Boston.
4. *The Influence of Internal Secretions on Growth and Functions.*
By Dr. Charles H. Lawrence, Boston.

Saturday Morning, June 7, 1924

MEETING OF THE SECTION OF SURGERY

9.30 o'clock

Officers of the Section of Surgery

Dr. Peer P. Johnson, Beverly, *Chairman*.

Dr. Ralph W. French, Fall River, *Secretary*.

1. *Gall Bladder Surgery in the Diabetic.*
By Dr. Daniel Fiske Jones, Boston, Dr. Leland S. McKittrick, Boston, and Dr. Dwight L. Sisco, Boston.
Discussion opened by Dr. F. Gorham Brigham, Boston.
2. *Arthroplasty. (Moving Pictures.)*
By Dr. William R. MacAusland, Boston.
Discussion opened by Dr. Nathaniel Allison, Boston.
3. *Intestinal Obstruction by Meckel's Diverticulum.*
By Dr. Ernest L. Hunt, Worcester.
Discussion opened by Dr. P. E. Truesdale, Fall River.
4. *Intravenous Mercurochrome.*
By Dr. Frederick S. Hopkins, Springfield.
Discussion opened by Dr. E. L. Young, Jr., Newton.
5. *The Relation of the Industrial Surgeon to the Family Physician.*
By Dr. Harold G. Giddings, Boston.
Discussion opened by Dr. W. Irving Clark, Jr., Worcester.

Saturday Noon, June 7, 1924

ANNUAL MEETING OF THE SOCIETY

Business of the Annual Meeting

Saturday Afternoon

THE ANNUAL DISCOURSE

1 o'clock

The Relations of the Massachusetts Medical Society to the Public.

By Dr. James S. Stone, Boston.

THE ANNUAL DINNER

2 o'clock

Tickets for the dinner will be issued at the Bureau of Information, without cost, to all Fellows who have paid their dues.

Fellows desiring to sit together in groups will please send their names to the chairman of the Committee of Arrangements, Dr. F. J. Callanan, and the proper reservations will be made. It is necessary that the chairman of the committee

know in advance the approximate number of those who will attend the dinner, therefore it is earnestly requested that each Fellow fill out and mail the enclosed card as soon as possible.

PROGRAM FOR LADIES

Friday Afternoon

BRIDGE AND TEA AT THE NEW OCEAN HOUSE

Friday Evening

THE SHATTUCK LECTURE

CABARET SUPPER

Saturday Morning

AUTOMOBILE RIDE ALONG THE NORTH SHORE

Saturday Noon

LUNCHEON AT THE NEW OCEAN HOUSE

Although the meeting closes officially with the dinner, there will be further opportunity for recreation and sightseeing along the North Shore during the afternoon.

MEETINGS OF THE COUNCIL

The Annual Meeting, Friday, June 6, 1924, at the New Ocean House, Swampscott. Other stated meetings in John Ware Hall, Boston Medical Library, on the first Wednesdays of October and February.

CENSORS' MEETINGS

The Censors for the several districts will meet for the examination of applicants for fellowship on the first Thursdays of May and November.

The Censors for the Suffolk District will examine applicants residing in that district and also applicants who are non-residents of Massachusetts.

Applicants for fellowship should apply to the Secretary of the District Society of the district in which they reside (have a legal residence) at least one week before the date of a given examination, taking with them their degrees in medicine.

TREASURER'S NOTICE

Assessments should be paid to District Treasurers, or, in the case of non-residents, to the Treasurer.

Assessments were due January 1st. For the convenience of members who have been unable to pay, assessments will be received for the Treasurer at the annual meeting.

OFFICERS OF THE SOCIETY
1923-1924

ENOS H. BIGELOW *President*
Framingham Center
AYRES P. MERRILL *Vice-President*
519 North Street, Pittsfield

WALTER L. BURRAGE *Secretary*
182 Walnut Street, Brookline
ARTHUR K. STONE *Treasurer*
Auburn Street, Framingham Center
EDWIN H. BRIGHAM *Librarian Emeritus*
Brookline
FRANCIS JERVOIS CALLANAN
Chairman of Committee of Arrangements
520 Commonwealth Avenue, Boston

SECRETARY'S NOTICE

All communications as to membership, especially changes of residence and address, should be sent to the Secretary, who keeps a constantly corrected official list of the Fellows and their addresses. District Secretaries and Treasurers should true their lists by the official lists of transfers and changes published in the JOURNAL.

THE JOURNAL

The BOSTON MEDICAL AND SURGICAL JOURNAL, the official weekly organ of the Society, will be sent only to Fellows who have paid their assessments, and to such Honorary and Retired members as may apply for it. Address communications to the Managing Editor of the JOURNAL, Dr. W. P. Bowers, 126 Massachusetts Avenue, Boston.

Standing Committees

Arrangements: F. J. Callan, Dwight O'Hara, J. C. Rock, L. S. McKittick, W. T. S. Thorndike, James Hitchcock.

Publications and Scientific Papers: E. W. Taylor, R. B. Osgood, F. T. Lord, R. M. Green, A. C. Getchell.

Membership and Finance: D. N. Blakely, Algernon Coolidge, Jr., Samuel Crowell, Gilman Osgood, Homer Gage.

Ethics and Discipline: Henry Jackson, David Cheever, F. W. Anthony, W. D. Ruston, S. F. McKeen.

Medical Education and Medical Diplomas: C. F. Painter, J. F. Burnham, A. G. Howard, R. L. DeNormandie, H. P. Stevens.

State and National Legislation: E. H. Bigelow, E. H. Stevens, F. E. Jones, J. S. Stone, T. J. O'Brien.

Public Health: Victor Safford, Annie L. Hamilton, E. F. Cody, R. I. Lee, T. F. Kenney.

Public Instruction: A. P. Merrill, Kendall Emerson, W. P. Bowers, J. S. Stone, G. C. Shattuck, W. H. Robey, Jr., R. I. Lee.

Delegates and Alternates to the House of Delegates of the American Medical Association

Delegates: F. B. Lund, Boston; E. F. Cody, New Bedford; H. G. Stetson, Greenfield; C. E. Mongan, Somerville; J. F. Burnham, Lawrence.

Alternates: W. H. Robey, Jr., Boston; F. W. Anthony, Haverhill; L. A. Jones, Swampscott; Gilman Osgood, Rockland; A. R. Crandell, Taunton.

SOCIETY MEETINGS

STATE, INTERSTATE AND NATIONAL SOCIETIES

June 3 and 4:—American Urological Association at Ambassador Hotel, Atlantic City, N. J.
June 6 and 7:—Mass. Medical Society, Annual Meeting, New Ocean House, Swampscott.
June 6 and 7:—American Therapeutic Society, 25th annual meeting, Toronto, Canada.